

ALUMNI UNIZG

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HERALD OF THE ASSOCIATION OF SOCIETIES OF FORMER STUDENTS OF THE UNIVERSITY OF ZAGREB



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Krešimir Mustapić - guest editor

Dear and respected colleagues,

First of all, I wish to point out that it is an honour and pleasure for me to take part in the preparation of this issue of Glasnik, the fruit of the work of a great number of alumni from our university. Glasnik connects numerous former University of Zagreb students from various parts of the world, from Zagreb, via Paris and London, to Toronto, who all share great appreciation and love toward the university and they wish that it will continue to prosper in all respects.

This year has been particularly hard due to the coronavirus pandemics and the big earthquake that struck the city of Zagreb, damaging among others many faculty buildings. For that reason, a considerable number of articles published in this issue of Glasnik is dedicated precisely to the damage inflicted on these buildings. I am especially pleased that the article from the Faculty of Civil Engineering, where I myself graduated, describes the great contribution of the employees and numerous other alumni, our colleagues structural engineers, who

were among the first to react as volunteers and to inspect and analyse the damage to many structures, and estimate whether these structures can be safely used. Volunteering is indeed a valuable potential strength of the ALUMNI UNIZG Association, through which we promote and support our university. You will find more about that and about ways to contribute to the advancement of the university and its students in the panel discussion "Alumni are the strength of our University" and in the Association's General Assembly report.

In our interview with the rector and the dean of the Faculty of Civil Engineering you can find out what are their thoughts about the role and importance of the academic community in emergency situations, and you will also find it interesting to read about the opinion from the Faculty of Architecture about the possibilities of urban renewal of Zagreb.

The article about humanitarian donations of AMCA Toronto offers a glimpse into some of the ideas of alumni organisations from North American universities (as many as 32 are ranked among the fifty best universities in the world) that have contributed to their universities through their voluntary work and financial donations, and how they could be applied to our present situation. It would be both desirable and beneficial for all of us, and for the wider community as well, that the alumni from the University of Zagreb, and especially those who have been highly successful, to follow the example of American and Canadian colleagues, and lend a helping hand to their university so that our alma mater can rise to the level at which we would all like to see it: as one of the highest ranking universities in Europe.

It can be seen from numerous reports about the activities of individual members of the Association that we have not been overcome by the coronavirus, but rather that we persevere in our activities, and that we are certain to come out of this pandemic even stronger than before.

The In memoriam section is dedicated to some of our most prominent alumni who are unfortunately no longer with us. However, so as not to close on a somber tone, there are many positive news from the university, including that, this year the University of Zagreb figures once again on the Shanghai list of the best universities in the world.

I wish you a pleasant reading of Glasnik, with warm regards from cold Toronto.

Krešimir Mustapić, President of AMCA Toronto
and Vice President of the ALUMNI UNIZG Association

Front page: Main building of the University of Zagreb / photo Damir Humski

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Stjepan Lakušić - guest editor

I am glad to have had the opportunity to participate in the preparation of this special issue of Glasnik that is devoted to the earthquake that struck Zagreb on 22 March 2020. History has taught us that earthquakes can be incredibly devastating, destroying almost entire cities, and are often followed by fires and floods that pose an additional threat to already damaged buildings. In order to ensure the greatest possible level of preparation and readiness for such events, especially for earthquake action, great advances have been made in civil engineering enabling civil engineers to use complex analytical and numerical models to anticipate seismic vulnerability of buildings, all of which has contributed to their greater safety. However, in the light of the fact that a great number of buildings in Zagreb and Croatia date back to the times when neither such calculations nor adequate construction materials were available, a reasonable fear can be expressed for the safety of the users of such buildings, especially with regard to new earth tremors. Thus, since 22 March 2020 when Zagreb was struck

by earthquake, a considerable number of earthquakes have been registered in Croatia, which were fortunately of low intensity. In extraordinary circumstances, such as earthquakes, civil engineers are the first to inspect the site and estimate the level of safety and serviceability of damaged buildings. In addition to checking safety of residential buildings, special attention is paid to critical infrastructure facilities such as hospitals, educational establishments, sacral buildings, dams, bridges, drainage systems, transport infrastructure, etc. This is highly important as the main objective is to achieve safety of people living in the earthquake stricken area.

The Faculty of Civil Engineering of the University of Zagreb and the academic community, have greatly contributed to remedial activities following the catastrophic earthquake registered in the city of Zagreb. This community has made available to the public its most valuable possessions: its knowledge and its expertise. We will mention here only some of the main earthquake-related activities of the Faculty of Civil Engineering: an emergency office managed by the Faculty was formed, the work of all teams of volunteers for rapid inspection of earthquake-damaged buildings was coordinated by the Faculty, all protocols and forms used in damage estimation were conceptualised by the employees of the Faculty of Civil Engineering and, based on field data, instructions were given to fire brigades to take emergency measures such as debris removal, removal of collapsed chimneys and other building parts that can present a threat to human lives, a data base of damaged buildings was formed - which is of crucial significance for all earthquake-related decisions made in the country, initial seismic recovery costs were estimated, guidelines for renewal - with necessary levels of renewal - were drafted (these guidelines are now an integral part of the Earthquake Act), the document Croatia Earthquake - Rapid Damage and Needs Assessment 2020 was prepared and - based on this document - Croatia became eligible to benefit from EU solidarity funding, the manual Urgent Earthquake Recovery Programme was prepared, and the book Earthquake Engineering - Renewal of Masonry Buildings is soon to be completed and will be published as a university monograph.

Through these earthquake-related activities, the Faculty of Civil Engineering - Zagreb has demonstrated that it is an adequately structured entity capable of responding to every challenge that appears in the field of civil engineering, and that it is only in such structured way that its mission can properly be fulfilled. This praiseworthy activity has additionally strengthened the Faculty's ties with its alumni while also pointing to an important fact: we must all act together in our efforts to build and develop society. Sometimes the words from the academic community seem to be harsher than expected, and sometimes they can be understood as criticism of activities performed by competent national authorities. However, I consider it an obligation of the academic community to voice its opinions in difficult moments, as it has the responsibility to give to society suggestions for appropriate changes that will promote the dignity of people and profession, all for the benefit of the society as a whole. I do hope that this earthquake will be a major eye-opener and that it will persuade us to start believing in the civil engineering profession and in its warnings, and also in its proposal that an appropriate system should be put in place for generations to come. Of course, the issue of strengthening buildings in other parts of Croatia should also be seriously considered. This is a crucial step and a far-reaching decision, but it is precisely in these pivotal moments that such crucial steps and far-reaching decisions need to be made.

We all like to be remembered for something but, it should be emphasized, one will be remembered for something that has been shared with people, and the Faculty of Civil Engineering of the University of Zagreb has effectively shared, through its selfless activity related to this earthquake, the most valuable asset it has, its knowledge and experience, and has demonstrated with high sensitivity its readiness to provide assistance to earthquake stricken citizens of the city of Zagreb in their hour of direst need.

Stjepan Lakušić, Dean of the Faculty of Civil Engineering

Interview with the rector of the University of Zagreb and the dean of the Faculty of Civil Engineering on the role and significance of the university community in emergency situations



Damir Boras and Stjepan Lakušić

The strong earthquake that hit Zagreb and the wider Zagreb area on Sunday 22 March 2020, has caused considerable damage to the infrastructure of the University of Zagreb as well as to the buildings of the University of Zagreb. In addition to the buildings, the earthquake that struck Zagreb, has considerably impaired scientific, educational, and professional activity of the constituent units of the University of Zagreb. We talked with the rector of the University of Zagreb professor Damir Boras and the dean of the Faculty of Civil engineering of the University of Zagreb professor Stjepan Lakušić about the damage caused by the earthquake on the buildings of the University of Zagreb, about the engagement of the Faculty of Civil Engineering in the inspection, estimation and remedy of the material damage and, finally, about the significance of the action taken by the academic community over this period of great difficulty.

As the past academic year, and also the current one, are really specific because of the coronavirus pandemic and the earthquake, which have affected the educational process and the life in academic community in general, could you tell us, Rector Boras, in what ways has to University come to terms with and adjusted to the new situation?

Damir Boras: At the very onset of the epidemic, the University of Zagreb established its emergency office and the task of this office was to monitor developments related to nCoV disease (COVID-19) and give recommendations to the management of the University of Zagreb in accordance with the actual epidemiologic situation. Professor Mirja-

na Kujundžić Tiljak, headmaster of the School of Public Health Andrija Štampar at the Faculty of Medicine of the University of Zagreb, was appointed president of Emergency Office of the University of Zagreb. Then, assisted by the Faculty of Medicine, through its dean professor Marijan Klarica and our excellent epidemiologists, a conference was organised for all deans and vice deans of individual constituent units of the University of Zagreb as related to actions to be taken in the event of the outbreak of coronavirus (COVID-19) in Croatia. Advice aimed as solving uncertainties and dilemmas encountered on the daily basis by the constituent units of the university, especially those that are not part of the biomedical group of university constituents, was promptly provided by our newly formed Student Health Care Office, which regularly monitors the situation at the University related to the epidemic and to student health in general. Soon after the outbreak of the pandemic, a strong earthquake unfortunately struck Zagreb and, with the help of the Faculty of Civil engineering, the University of Zagreb formed an Emergency Office for the rehabilitation of university buildings and the remedy of damage. At that, the Faculty of Civil Engineering has put its resources at our disposal and coordinated the work of the Emergency Office, all this with the great and undivided assistance of professor Lakušić, who was appointed as the head of this office. I am personally very pleased with the way the University of Zagreb has managed to rapidly and fully organise and perform online teaching activities. Despite the fact that remote teaching cannot fully replace contact teaching, I am pleased with the results. The university has once again shown that it is ready to promptly respond to sudden new requirements, not only within itself as an educational institution, but it has also made in both segments, the epidemic segment and the post-earthquake rehabilitation segment, a significant positive contribution to the Republic of Croatia and to the entire people of Croatia.

Professor Lakušić, after the earthquake hit Zagreb and Zagreb area, your colleagues from the Faculty, experts and alumni promptly provided assistance to their fellow citizens and were among the first, as volunteers, to come out and inspect the damage and estimate the situation. How did the Faculty of Civil Engineering manage to contact its alumni in such a short time?

Stjepan Lakušić: When I think of it now, I must admit that that Sunday morning just after the earthquake was really interesting. As at that time no

national mechanism was in place to coordinate such a situation, the Ministry of the Interior and the City of Zagreb contacted the Faculty of Civil Engineering, which reacted immediately and offered assistance of its experts from the field of earthquake engineering. In effect, the Faculty of Civil Engineering has been cautioning the public for a long time that there is a great threat of earthquake not only for the city of Zagreb but also for the entire territory of the Republic of Croatia. In this respect, various simulations, seismic risk analyses, and projections, were made about the effects an earthquake might have on hospitals, schools, museums, residential buildings, etc. Thus, we fortunately had at that time the procedures for the realisation of rapid inspections, as well as protocols for all actions that should immediately be taken in such cases. Experts from the Faculty of Civil Engineering set the procedures, and contacted faculty lecturers to respond and take part in rapid inspections. An appropriate education was rapidly organised for all engineers that responded to our call so that these rapid inspections of earthquake-damaged buildings could be performed efficiently and to the highest standards. Using the system of the Croatian Chamber of Civil Engineers, we made a public call to all civil engineers that were able to take part and provide assistance to the citizens of the city of Zagreb. About 150 engineers were activated as early as four hours after the earthquake, and they immediately started to inspect the earthquake damaged buildings. A day after the earthquake, the number of participants in inspections increased to 250 and, within a week, as many as five hundred engineers were taking an active part in the inspection of buildings that suffered damage in the city of Zagreb. Following the initiative of the University rector, professor Damir Boras, the emergency office of the University of Zagreb was formed and delegated to carry out inspection, damage estimation, and remedy of buildings damaged in this earthquake, and all deans from constituent units of the University contacted me promptly by phone or email, so that inspection of damage to each constituent part of the University was organised in a very short time. In addition, specially educated experts visited critical infrastructure such as hospitals, old people's homes, schools, museums, and churches, so that these buildings could be properly inspected and to determine whether such structures could be used, which was especially important in the case of hospitals. I would like to use this opportunity to commend all engineers that responded to our invitations and voluntarily conducted rapid inspections of damaged buildings, and to thank them on their contribution, as they performed this activity with great zeal and enthusiasm, without regard to working hours, and despite external conditions and factors that were less than favourable. It was

especially complex to perform these inspections during the coronavirus pandemic when the entire country was closed down, so to speak, and when even special permits had to be procured to enable undisturbed movement of engineers through various parts of the city.

It is evident that the earthquake has caused great damage to many buildings of the University of Zagreb. Rector Boras, could you tell us something about the way the most stricken faculty organised themselves, taking into consideration the fact that some of the buildings in which they work suffered great damage?

Damir Boras: The faculties whose infrastructure suffered significant damage responded very quickly and contacted experts from the Faculty of Civil Engineering who inspected the facilities and estimated the damage, and promptly gave instructions and recommendations about the possibilities of using such buildings. In the scope of these activities, all damage was estimated on the main building of the University of Zagreb, which is also home to the Faculty of Law, and a technical report was made, which served as basis for partial remedy of this building. Thus appropriate supports were made on the great staircase, very strong steel eaves were erected around the University and within the staircases, so that currently the ground floor, lower ground floor, raised ground floor, and a part of the first floor can be used, while the rest of the building is still unfit for use. Here I would like to note that according to the World Bank methodology, the cost of repair of the University building, which is a protected cultural monument, is estimated at HRK 108 million, and so I hope that the damage will be repaired thanks to the Law on the renewal of earthquake damaged buildings situated in the area of the City of Zagreb, Krapina-Zagorje County, and Zagreb County, which was passed on 11 September this year. I am aware that the renewal will take some time, but it is necessary to prepare a design of remedial activities and to spend the approved funding within 18 months. This earthquake can be used as an opportunity not only to repair, but also to extend and renovate the University in the most modern way.

As one of the University's missions is to provide assistance to the society, how would you estimate the contribution of the Zagreb University, its constituent units, and individuals from the academic community, in coping and dealing with the current situation? What is, in your opinion, the role of alumni in encouraging socially responsible behaviour, especially in these times of crisis?

Damir Boras: That is quite a layered question but, and the time of pandemic and the consequences borne by the public due to this earthquake, it can be said that our university and our alumni have offered the most they possibly could. The Faculty of Medicine and the Faculty of Civil Engineering



Collage of volunteers

of the University of Zagreb have really proven to be crucial factors of stability of this country and a veritable force for renewal. This once again confirms the fact that it is necessary to listen to the professionals and the strongest scientific establishment in the Republic of Croatia, the University of Zagreb, in all segments of science.

Stjepan Lakušić: At the moment when the area was hit by the earthquake, only the academic community was ready to take on the entire risk, and to show in what way the system of rapid inspections should be organised, and what data must be collected, so that these data can be used in taking further steps (cost estimation, levels of renewal, preparation of the Renewal Act, etc.). As an example I would mention the document Rapid Damage and Needs Assessment (RDNA) based on which Croatia withdrew € 680 million via the World Bank from the Solidarity Fund of the European Union. This document was for the most part prepared by experts from the Faculty of Civil Engineering based on the data collected through rapid inspections and from several ministries. At that moment, Croatia was the seventy-first country that benefited from its active World Bank participation in the provision of assistance to the stricken countries, i.e. to the governments of the countries that suffered damage caused by earthquake, flooding, etc., and this was the first example that the experts from only one country and from a single

faculty at that, participated in a complete preparation of all materials related to preliminary estimation of damage, in preparation of guidelines for renewal, and in preparation of the RDNA documents which ensured access to funds from the EU Solidarity Fund.

Volunteering activity, and work for the public good, are fundamental principles on which the idea of alumni is based all over the world, as also demonstrated by the former students of the Faculty of Civil Engineering. Professor Lakušić, would you have an advice about how to motivate alumni to get involved more actively in societally beneficial work, and in helping their Faculty and University?

Stjepan Lakušić: This is first of all a process that requires continuous work. The Faculty of Civil Engineering has never forgotten its alumni and, in this respect, we organise alumni evenings during which we provide and exchange latest information about new developments in the field of civil engineering. On an annual basis, we regularly organise conferences, colloquiums and seminars, we invite colleagues from our profession and, thus, through joint work we build up mutual confidence. We also follow our students and, through organisation of the Job Fair and Career Day we connect them with businesses. Here we must definitely stress the participation of our alumni in research and development projects and, soon, this activity will be organised through the Economic Council of the Faculty of Civil Engineering which is at an advanced stage of being established.

The current situation with the coronavirus pandemic gives us ground to believe that the so called “new normal” or “new reality” will unfortunately last for a long time. The pandemic has even now caused great changes that reflect on all aspects of our lives, and also on higher education and science. In the context of these global changes, could you tell us rector Boras in what light do you see further development of the University of Zagreb? In which way will we have to change?

Damir Boras: We have seen that without the respect of others, and without joint action, we cannot survive in normal times, let alone in the times of crisis. The task of the University is to create foundations and to enable all people to take part in lifelong learning, respecting at that human values, educating future experts who will support the same grand causes, and teaching young generations that only in cooperation with their elders, that is to say with experts, they can become in the future real citizens of this country. The University will certainly change and adapt to new technology situations, but primarily in the way to strive toward creating top experts who will behave, in relation to their work, University, and country, in a responsible manner, with empathy, and by showing an appropriate level of commitment. And

we must not forget that no society could prosper, and no societal advancement could be expected, without the highest level of science and first-class education.

Rector Boras and professor Lakušić, for the end of this interview, I would like to invite you to send a message of encouragement to our current students and alumni of the University of Zagreb.

Damir Boras: I would like to invite all professors, students and former students to unite their efforts in order to create and strengthen mutual ties and the idea of togetherness, as it is only through interaction and mutual engagement that we can advance and live well. As an example, I would like to mention the societally useful learning, the so called service learning, which I have introduced at the University, together with our colleague professor Nives Mikelić Preradović, president of the Association of Alumni at the Faculty of Humanities and Social Sciences. It is through this service learning that students provide assistance, on a voluntary basis, to various societal communities, by offering their knowledge and time. This societally beneficial learning has proven to be quite useful, as young people are being sensitized, already during their studies, to the importance of helping others, and are actively included in such activities, whenever the need arises. Assistance aimed at togetherness, accountable behaviour, and knowledge-based personal development, are the principles we all should strive toward.

Stjepan Lakušić: It is absolutely essential to emphasize to the students, especially near the end of their studies, that they should not forget their faculty and that they should continue to collaborate with their instructors, as the doors of their respective faculties and our University will always remain open to them. Students should be included in every voluntary activity undertaken by the faculty, as it is

only through an example of socially useful work of professors that students will also acquire such habits, i.e. that the most valuable qualities they have, their knowledge, ardour and will to learn, can later on be used by them for some socially useful activity through which assistance to those in need will be provided. We should be aware that those who offer help spend in that activity a smaller portion of their time but, for those who need help, such assistance is at a given moment something of an incomparable value. Sometimes a warm and calming word is more valuable than a monetary assistance. We should not forget that the only thing the future generations will remember us for are the things we have shared with others. When such values are instilled in young people through education and positive examples of socially beneficial work, then a great chance exists that they will also abide by similar principles in their lives and make our society a better place.

We wish to extend our thanks to rector Damir Boras and professor Stjepan Lakušić for the time taken for this interview and for the contribution they make, as heads of higher education institutions, to our University, our society, and our country in these demanding times. We believe that, by acting in concert, we will be able to continue to cope – through our enthusiasm, patience and reasonable behaviour - with the difficulties we have been facing, not forgetting that education is the foundation and key element of every society. Thanks are also due to all alumni as they have really proven to be a veritable strength of our University. We also invite everyone else to implement this concept of togetherness and work for the public good, which is indispensable in these times of difficulty.

Interviewed by Petra Lojen

Alumni are the strength of our University



Panel discussion participants

The Association ALUMNI UNIZG took an active part in earthquake-related efforts by organising the panel discussion entitled *Alumni are the Strength of our University*. All interested students, alumni and other parties were able to participate in this discussion via Internet streaming.

The panel discussion was held on 16 October 2020 in the scope of the first Career Day organised by the Career Development Office of the University of Zagreb.

The panel discussion was attended by professor Damir Boras, rector of the University of Zagreb, Darinko Bago, president of Croatian Exporters, professor Stjepan Lakušić, dean of the Faculty of Civil Engineering of the University of Zagreb, professor Mario Šafran, president of the ALUMNI UNIZG association, and Damir Vandelić, president of the INA d.d. supervisory board. Soon after the discussion, Mr. D. Vandelić was appointed as acting chairman of the Zagreb Reconstruction Fund. The panel discussion was moderated by our renowned alumnus Mislav Togonal, TV editor and presenter at Croatian Radio & Television (HTV) who immediately put into focus a number of questions that are related to this discussion: How do we collaborate with alumni in the present-day Croatia? Do we know who our former students are, and what careers have they achieved? Is there a well-kept register of former students? To what extent they are employable with the knowledge they acquire at the end of their studies? Can alumni become mentors to gifted students and help them in their future careers? These are only some of the questions raised at the beginning of the discussion.

The panel discussion started with the question addressed to rector Boras about the extent to which the University really follows and knows its former students, and about the information we now have about their present-day achievements. The rector replied that formerly not much heed was paid to careers of students after the end of their studies,

but that in recent times the situation has been improving. He pointed out that about ten thousand students graduate each year from the University of Zagreb and that it is important to follow their careers in order to maintain the network of our alumni, as this contributes to the improvement and further development of the University. He also emphasized that our University figures this year too on the Shanghai list of the worlds' best five hundred universities, while also pointing out that it ranks among three hundred best universities by the quality of teaching, which is in fact the most important mission of the university. He stressed that "... top teaching is based on the best possible science, and such science depends on the quality of financing".

When asked about the extent of his contacts with the faculty after the end of studies, Damir Vandelić stated that the studies at the Faculty of Mechanical Engineering and Naval Architecture significantly contributed to the development of his career, and that these studies constituted an excellent basis for logical and well-structured systemic thinking. "As president of the Economic Council of the Faculty of Mechanical Engineering and Naval Architecture that gathers together some thirty entrepreneurs, who are also alumni of this faculty, I try to collaborate with the Faculty and get involved in the work of the Faculty, partly from gratitude and partly from the wish that the Faculty will live to see its change", emphasized Mr. Vandelić. At that, he considers that it is important to improve basic education so that after graduation, new graduates will be ready to work in multicultural and multidisciplinary teams. Related to the issue of disappearance of some professions in the future, he considers that the country and the university have the responsibility to point in what direction the society is going, but also that we all must be ready for changes and continuous learning.

Darinko Bago agreed with this statement saying that as an alumnus of the Faculty of Electrical

Due to situation of the epidemic, the [Career Day](#) was held via the Zoom platform. This is an event intended for students and for connecting them with representatives of the labour market, the objective being to provide the students with appropriate information about practical knowledge and skills that are required by employers. In the scope of the programme, students were provided with information about volunteering work possibilities, and they communicated online with representatives of faculties, entrepreneurs, and alumni of the University of Zagreb, all this in order to motivate and educate students with regard to their potential employment.



Panelists and audience

Engineering and Computing he spend his entire working life on the wave of continuous changes. “If one wishes to stay on top or be informed about such changes, his only task, in addition to diligent work, is to continuously learn, emphasized Mr. Bago.

Professors and alumni of the Faculty of Civil Engineering have best shown through their example how important it is to include the academic community into the socially beneficial work. In effect, after the earthquake that struck Zagreb and Zagreb area on 22 March this year, they took part in numerous volunteering activities related to estimation of usability of buildings in the area of the city of Zagreb. “Our wish was to help people in their most difficult moments and, as professors from the Faculty of Civil Engineering, we were the only ones that could help at that time, and readily offered our services to the public”, said professor Stjepan Lakušić. As the Faculty of Civil Engineering has in its database a considerable number of alumni, it was able to activate them on a very short notice, and they responded favourably without any hesitation and have provided assistance in a number of ways. This brings up the question about how to motivate alumni to be ready, after having completed their university studies, to provide assistance both to their faculty, and to new generations of students.

“The only way is to implement a well-thought-out systematic approach and, in this respect, the experience gained so far through the work of the Association has shown that the best motivating factor is to make use of good and positive examples”, emphasized professor Mario Šafran. He considers that establishment of the Career Development Office at the University and its constituent units is a step in the right direction involving professionalization of the care about former students.

Mislav Togonal referred to the philanthropic activity of Mr. Vandelić in the sense of granting scholarships to students, and Mr. Vandelić replied that it is necessary to develop, both at the faculties and at the Universities as a whole, a system through which best students would be rewarded via donations and sponsorships. “In addition, the role of the mentor or coach, where alumni could pass on their knowledge and experience to present day generations of students, is as valuable as the scho-

larship itself”, emphasized Mr. Vandelić.

A good scholarship award practice is that applied at KONČAR d.d. which, according to Mr. Bago, has granted scholarships to over 450 students from various faculties of the University of Zagreb, and the amounts thus awarded equal an average salary earned at Končar d.d. Using Harvard University as an example, he explained that this mechanism starts from the country itself, i.e. when a country sees that it is good when people completing their university studies are included in a network of alumni, because they can – through their work and business relations - greatly contribute to society. “If we wish to develop the alumni philosophy we have to first of all ensure by political means that every activity be rewarded through tax relief”, emphasized Mr. Bago.

After Mr. Mislav Togonal stated that some professions are more likely to form expert networks than others, and that some professions are more prone to “stick together”, he asked professor Lakušić whether this is the case in the civil engineering sector as well. The latter explained that the sector of civil engineering is a vast sector that will be, over the next ten to fifteen years, the sector with the greatest level of activity, which is why it is indispensable to form network and closely interact with other sectors as well. Unlike most companies that do not have their institutes and laboratories, faculties have properly accredited laboratories and are thus fully able to assist the economy in becoming competitive on the market. “The task of the academic community is to increase, working hand in hand with the economy, the gross domestic product of our country”, emphasized professor Lakušić.

Professor Damir Boras stressed that the message of university studies is to form accountable citizens who believe in this country, so that the resources invested by the state into public universities be returned by the students through their staying and working in Croatia. The panel discussion continued with some questions from the audience, where inter alia an emphasis was placed on the need to include alumni through economic councils into preparation of new education plans in such a way that multidisciplinary knowledge, which many students currently lack, be included in the curriculum.

The panel discussion was closed by professor Mario Šafran who expressed satisfaction that the story on alumni activities as a form of socially accountable behaviour was presented in the right light and, in his final statement, he invited all alumni to spread through their activity the principles of alumni philosophy and to safeguard the good reputation of their University.

Petra Lojen and Paula Pavletić

Challenges of the University of Zagreb after the March 2020 earthquake

Damage, tasks and successes of the academic community related to the Zagreb earthquake

In the midst of the pandemic, the city of Zagreb and its surroundings were hit on 22 March 2020 by the strongest earthquake in the last 140 years. Civil protection services were immediately activated, and employees of the Faculty of Civil Engineering went to the Civil Protection Directorate of the Ministry of the Interior after being urgently called upon based on their long-standing cooperation, the purpose being to assist in the organisation of the system and in establishment of the emergency office for operative management of on-site activities. During the first hours after the earthquake, qualified experts inspected hospitals in the old part of the city, which suffered moderate to significant damage, and the Sava bridges as these constitute important communication routes. Later on, numerous volunteers, for the most part University of Zagreb alumni, also joined in the inspection activities.

Many buildings, mostly masonry structures in the Lower Town and around the epicentre, suffered earthquake damage. Citizens reported damage first by telephone and then by email and Internet. More than twenty-five thousand of buildings were inspected over the ensuing months. Damaged bu-

ildings include the University of Zagreb building and the buildings of some constituent units of the University.

Damage of some buildings of constituent units of the University of Zagreb, and of buildings of public interest, which were inspected by experts from the Faculty of Civil Engineering

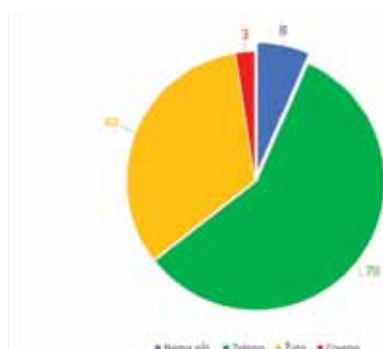
The University of Zagreb sent on 8 May 2020 an on-line questionnaire to all its constituent units in order to collect data about the damage inflicted in buildings in the education sector covered by the University of Zagreb. The data collected during this survey were backed by the GIS database of buildings damaged in the earthquake, and it was established that 113 faculty/academy buildings suffered damage in the earthquake, out of which 70 were marked as usable (green mark), 40 as temporarily unusable (yellow mark) and 3 as fully unusable (red mark). The total gross floor area of all faculty buildings situated in the City of Zagreb amounts to 505,571 square meters, out of which damage was registered on as many as 493,390 square meters, while heavy damage (red category of damage) was registered on 21,556 square meters. The data on the University of Zagreb buildings are presented graphically as follows:

Aggregate data about the number, gross floor area and users – faculties/academies

	Total number of buildings	Total area	Total number of students	Total number of employees
Zagreb	121	505.571	66.623	9.256
Outside of Zagreb	5	14.839	2.101	259
TOTAL	126	520.410	68.724	9.515

Data on the number and area of damaged buildings – faculties/academies

Category	Number	Area
No damage (blue)	8	12.181
Green	70	308.832
Yellow	40	163.002
Red	3	21.556
Total damage	113	493.390



Number of buildings according to damage



Gross floor area according to damage

Main building of the University of Zagreb and Faculty of Law, Trg Republike Hrvatske 14



Central staircase of the main building of the University of Zagreb and Faculty of Law

Rapid inspection revealed damage to chimneys, roof structures, cracks in the linings of walls and ceilings, vaults and floor structures, and local damage to structural elements; the central staircase is heavily damaged while only lighter damage was registered on the west staircase. Based on these findings, it was concluded that the building is temporarily unfit for use until detailed inspection is made, but that some zones within the building can be used albeit to a limited extent.

Catholic Faculty of Theology

A rapid inspection was made and, based of these findings, it was decided that the building is fit for use but with some limitations, and so a detailed inspection of the roof structure is recommended (chimney and all cantilevers).



Aula of the University of Zagreb



University building/Faculty of Science building, Ul. Kralja Zvonimira 8

Because of a very poor condition of the roof structure and the antenna and the hazard of the collapse of the chimney, it was decided that the building is temporarily unfit for use, and a detailed inspection is recommended, while urgent intervention measures must be taken.



Hallway at the Faculty of Law



Damage to the University building and the Faculty of Science

Institution	No. of buildings				Surface (m ²)				No. of students	No. of employees	Buildings that will not be for use at the beginning of the ac. year 2020./21.	
	No damages	With damages - building is usable (green label)	Building is temporary not for use (yellow label)	Building is not for use (red label)	No damages	With damages - building is usable (green label)	Building is temporary not for use (yellow label)	Building is not for use (red label)			No.	Surface
Faculty of Agriculture	0	4	5	0	0	0	0	0	2.200	440	4	7.950
Academy of Dramatic Art	0	1	0	0	0	0	0	0	347	128	0	0
Academy of Fine Arts	0	1	2	1	0	0	600	0	413	127	4	9.138
Faculty of Architecture	0	0	3	0	0	0	0	0	1.464	230	3	8.350
Faculty of Education and Rehabilitation Sciences	0	2	0	0	0	0	0	0	1.980	124	0	0
Faculty of Economics and Business	0	2	1	0	0	0	0	0	11.025	380	0	0
Faculty of Electrical Engineering and Computing	0	6	0	0	0	0	0	0	3.773	596	0	0
Faculty of Philosophy and Religious Studies	0	0	1	0	0	0	0	0	400	32	0	0
Faculty of Croatian Studies	0	5	0	0	0	0	0	0	1.252	125	0	0
Faculty of Chemical Engineering and Technology	0	1	2	0	0	0	0	0	1.171	199	2	5.222
Faculty of Political Science	0	2	0	0	0	0	0	0	1.404	107	0	0
Faculty of Transport and Traffic Sciences	5	3	0	0	5.925	0	0	0	1.573	221	0	0
Faculty of Mech. Engineering and Naval Architecture	0	2	1	0	0	0	0	0	2.336	454	0	0
Faculty of Pharmacy and Biochemistry	0	3	1	0	0	0	0	0	1.629	182	2	8.050
Faculty of Humanities and Social Science	0	3	0	0	0	0	0	0	6.155	792	0	0
Faculty of Geodesy	0	0	1	0	0	0	0	0	531	96	0	0
Faculty of Civil Engineering	1	1	3	0	5.000	1.411	0	0	1.220	198	0	0
Faculty of Graphic Arts	0	1	0	0	0	3.240	0	0	619	86	0	0
Catholic Faculty of Theology	0	1	1	0	0	2.200	600	0	571	117	0	0
Faculty of Kinesiology	0	1	0	0	0	14.081	0	0	2.595	127	0	0
School of Medicine	0	4	5	2	0	14.023	32.977	20.956	2.947	826	5	40.476
Academy of Music	0	1	0	0	0	10.527	0	0	538	170	0	0
Faculty of Law	0	2	3	0	0	4.400	10.600	0	5.851	241	1	2.900
Faculty of Food Technology and Biotechnology	0	6	0	0	0	10.148	0	0	1.135	286	0	0
Faculty of Science	0	6	3	0	0	39.659	11.587	0	7.442	1.304	3	11.587
Faculty of Mining, Geology and Petroleum Engineering	0	1	0	0	0	7.253	0	0	619	164	0	0
School of Dental Medicine	0	1	2	0	0	1.462	2.215	0	618	267	0	0
University Computing Centre - SRCE	0	1	0	0	0	4.373	0	0	19	152	0	0
Faculty of Forestry	0	1	1	0	0	12.243	8.679	0	715	228	1	8.679
Faculty of Textile Technology	0	1	1	0	0	5.000	500	0	625	166	1	5.000
Faculty of Teacher Education	0	0	2	0	0	0	11.500	0	2.400	200	0	0
Faculty of Veterinary Medicine	2	6	0	0	1.256	25.606	0	0	956	324	0	0
University of Zagreb	0	1	2	0	0	337	6.484	0	100	167	2	6.484
TOTAL	8	70	40	3	12.181	308.832	163.002	21.556	66.623	9.256	28	113.836

Teams from the Faculty of Civil Engineering participated in the estimation of earthquake damage on numerous buildings, hence on those of public interest, including the following buildings: Children's Hospital in Klaićeva, Clinic for Women's Health and Obstetrics in Petrova, Clinic for Pulmonary Diseases Jordanovac, Clinic for Traumatology, University Hospital Centre (KBC) Rebro, KBC Sv. Duh, Croatian Heritage Association, Old City Hall, Ministry of the Interior, Croatian Employment Office, and many other buildings. The most frequent damage to old masonry buildings in the centre of the city involved collapse of chimneys, roof structures and unsupported gable walls. Facade walls also collapsed in some buildings, and typical inclined cracks appeared in load bearing walls and lintels of many buildings, while the detachment of floor structures from walls was also registered.



Old Town Hall, Čirilometodska 5

Contribution of alumni to the remedy of consequences of Zagreb earthquake

On Sunday, the very day of the earthquake, amidst the uncertainty and despite the coronavirus a great number of alumni of the Faculty of Civil Engineering of the University of Zagreb selflessly decided to offer assistance to their fellow citizens. As the number of damage reports received from citizens was high, the Civil Protection Service of the Ministry of the Interior rapidly sent the request for mobilisation of civil engineers through the Croatian Chamber of Civil Engineers, and more than 150 engineers responded on the very first day. The volunteers were rapidly provided with necessary protection equipment (hard hats, reflective jackets, gloves, masks, disinfectants, etc.), after which they received instructions about locations to be inspected. The assistance soon arrived from many sides and, with time, the number of volunteers increased significantly. In the first week, the number of volunteers rose to over 500, and they came from all parts of Croatia.

Many volunteers spent these first days in on-site work, and in the evenings, they read recommendations from the emergency office and received plans for the following day. During the day, the volunteers exchanged information and received



On-site volunteers helping people in need

information from the emergency office via three WhatsApp groups. Volunteers were organised in two-person teams and, initially, the inspection forms were filled in manually. After some time, the forms were digitised and eventually the volunteers received the information about nearby uninspected buildings automatically, via an appropriate application. The system continuously improved and new equipment arrived, which all facilitated the on-site work.

Despite such high quality organisation, some minor problems did occur during the first days, such as lack of masks, the same damage reported twice by citizens, insufficiencies in the self-isolation system and untimely provision of information about people in self-isolation and, in some cases, issuance of parking tickets to on-site volunteers. All these problems were solved very rapidly, and the volunteers mostly concentrated on their building inspection duty. As most engineers had to fulfil their normal work obligations in addition to this volunteering work, they were joined in the inspection work by architects.

A considerable number of alumni from the Faculty of Civil Engineering took part in rapid inspections of earthquake damaged buildings, and many assisted in other ways, such as donating equipment, by participating in expert groups, by sending proposals for the new Law on reconstruction of earthquake damaged buildings in the area of the City of Zagreb, Krapina-Zagorje County and Zagreb County, by preparing manuals, by participating in educations and knowledge sharing seminars, by removing potentially harmful structural elements, and by taking part in many other activities. Thus, a seminar entitled "Post-Earthquake Reco-

very of the City of Zagreb – Legal and Technical Framework” was organised on 23 July at the Faculty of Civil Engineering in consultation with the Croatian Chamber of Civil Engineers. In addition to researchers from the scientific community, presentations were also given during the seminar by practicing engineers, i.e. by alumni who greatly contributed to the preparation of the manual Urgent Earthquake Recovery Programme and to the elaboration of other manuals for the renewal and strengthening of existing structures, and also to the preparation of the new Law.

In order to make the city a safer place to live in, and to protect invaluable cultural heritage of the City of Zagreb, some elements had to be removed with great care, which often required expert knowledge of civil engineers.



Civil engineers after successful disassembly of a problematic dome

The role of civil engineers remained equally important even after the first rapid inspections and this during design work, i.e. through design of current structural condition of buildings, and preparation of technical reports, remedial work proposals, and remedial work designs. The knowledge and skill of civil engineers is also required during the planning, realization and supervision of works. In effect, civil engineers take part in all processes during construction work: visual inspection, analysis of seismic requirements, selection of reconstruction and strengthening material, realization of strengthening work, inspection of realised works, testing quality of materials, and harmonisation of design documents with requests formulated by preservationists and investors. Many engineers that took part in various activities related to the reconstruction of the City of Zagreb are former students of the Faculty of Civil Engineering.

Contribution of Faculty of Civil Engineering

Although official earthquake-risk estimates do exist in Croatia, they are often defined only formally, without a detailed earthquake protection plan and strategy. After this earthquake, a great part of efforts related to structural inspections, from creation of forms to physical implementation were made, on a voluntary basis, by employees and alumni of the Faculty of Civil Engineering, and by



Croatia Task Team: Maja Baniček, Luka Bukvić, Mario Uroš, Siniša Badovinac, Josip Atalić, Ante Pilipović, Karlo Jandrić and Robert Ribarić

experts from other constituent units of the University. As many as 42 employees of the Faculty of Civil Engineering were involved in the education, organisation and implementation of inspections, which is the greatest contribution when compared to other constituent units of the University. It should also be noted that employees of the Faculty of Civil Engineering have significantly contributed to this effort thanks to their experience gained during post-war reconstructions and during inspections after some earlier earthquakes.



Collaboration with local engineers (Gledis Kallogjeri), students from the Faculty of Civil Engineering of the Polytechnic University of Tirana, and UNDP experts (Krunoslav Katić) who conduct Post Disaster Needs Assessment (PDNA) activities

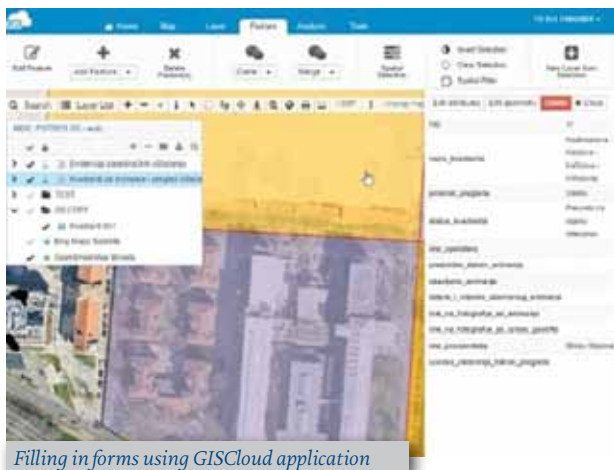
Several months before the Zagreb earthquake in November 2019, Albania was also struck by an earthquake. Experts from the Faculty of Civil Engineering participated in the inspection of earthquake-damaged buildings, and it is during these inspections that they gained experience about relevant procedures and about the way in which damage should be estimated. This experience was of considerable assistance during post-earthquake inspections in Zagreb (Figure a). Figure b) shows a team that took part in post-earthquake inspections in Albania.

Development of databases and education

An appropriate structural inspection form was created so as to enable uniform estimation and classification of damage. A printed form was used during the first two days of inspection work, but the preparation of a digital form based on the

ArcGIS Online geo-information platform started already during the first night following the quake. In the scope of this platform, and under guidance of the Faculty of Civil Engineering, a database was created that was used for systematic registration of structural damage data. In addition to information about the damage, the form also contains general information about the structure (height of individual floors, plan-view area, etc.), which is important for subsequent analyses such as estimation of costs or risk for the entire city. In addition, all significant damage was photographed and stored in the databases so that it can be consulted by experts during subsequent inspections (for instance, if an urgent repair measure was required). Experts working on site entered the required data in the application, and the data then became directly available to all other interested parties (such as municipal offices and ministries). The “rapid inspections” were only one part of the methodology.

In the pre-earthquake Croatia, there was no appropriate form and, in addition, the database on existing structure was incomplete, which greatly complicates estimation of the influence earthquakes have on the society. In the future, it would be highly significant to systematically note the greatest possible amount of building-related data. In addition, the level of public awareness about the seismic risk is low and, in this respect, the recent earthquake has also pointed to some challenges we will have to deal with in the oncoming period.



Filling in forms using GISCloud application

In addition to the platform for on-site inspection of buildings, the employees of the Faculty of Civil Engineering have also developed the GISCloud system based on which, using images collected by pilotless aircrafts, experts determine structural damage and add information to data collected by engineers performing on-site inspections. In effect, using photos taken from air, it is easier to determine the damage to the parts of buildings that are difficult to reach, to monitor the chimney removal process, and to note the parts of the structure that constitute a hazard. The system contained a database of aerial photos for individual parts of the



Building inspection education in emergency office

city, which is why volunteers had to be called on to organise drone flights.

Many experts do not often deal with problems occurring after earthquakes, which is why it was necessary to organise, immediately after the earthquake, an appropriate education so that the estimation would depend as little as possible on subjective estimation of engineers, and so as to make the inspection standards uniform. The education was organised by employees of the Faculty of Civil Engineering, and first educations were conducted in the civil protection office of the city of Zagreb through discussions and consultations. These sessions were organised several times a day, i.e. depending on the need. Through this discussion based education, on-site engineers gained useful information about the estimation procedures while, on the other hand, experts in the civil protection office gained an idea about problems most frequently encountered during inspections, and about problems engineers had to tackle, and so the education was adjusted based on this new knowledge.

Croatian Centre for Earthquake Engineering at the Faculty of Civil Engineering

Later on, due to epidemiological measures, the education was held via video tutorials and written material made available on Internet pages of the Croatian Centre for Earthquake Engineering operating at the Faculty of Civil Engineering (www.hcpi.hr). The same pages contained information about the current number of inspected buildings, instructions for citizens and engineers, and useful information about inspection and repair methods, literature, reconstruction levels, etc. Here it should be noted that the Croatian Centre for Earthquake Engineering is not an institution, but rather an Internet site created after the earthquake to provide assistance to both volunteers and citizens. However, the need to establish and formalise such a centre does exist. Organisation of the post-earthquake building inspection service is just one of the tasks of such a centre that can excellently lean onto the centres already existing within the MUP Civil Protection Directorate (an example is the mission in

Albania conducted in 2019). This earthquake has shown that existing capacities have to be increased significantly, and that experts must be systematically organised so as to be ready for possible occurrence of a new destructive earthquake in the Republic of Croatia.

Contribution to the elaboration of the *Law on reconstruction of earthquake-damaged buildings in the City of Zagreb and its surroundings*

In collaboration with the Croatian Chamber of Civil Engineers, the Faculty of Civil Engineering also published a manual entitled Urgent Earthquake Recovery Programme (hereinafter referred to as UERP) in which various technical solutions are proposed with regard to the reconstruction of chimneys, gable walls, and other attic structures. The manual can also be found in an interactive online version at www.hcpi.hr. This version enables easier consultation of individual sections.

A considerable number of researchers and practicing engineers from entire Croatia took part in the preparation of this manual, which points to the strength of collaboration and good interaction. This collaboration was present throughout the entire inspection process, and now continues during the period of repair and reconstruction activities. The manual is quite extensive and the solutions given are described in detailed and supported with illustrations, and are highly applicable in practical situations. The authors of the manual paid special attention to the fact that the proposed solutions should also be the final solutions, and that the construction can be undertaken in several reconstruction levels, as will be defined by the law.

Reconstruction levels were defined by a work group of experts (expert group). These levels, presented in great detail in the mentioned manual, will be an integral part of the Law on reconstruction of earthquake-damaged buildings in the City of Za-

greb and its surroundings (hereinafter referred to as the Law). Four levels of reconstruction of damaged buildings are specified, from repairs that do not increase seismic resistance (level 1) to repairs that increase seismic resistance to the level required for new structures (level 4). Reconstruction levels are presented schematically in the following figure.

The expert group was organised soon after the earthquake by the Faculty of Civil Engineering and the Croatian Chamber of Civil Engineers. The group was composed of practicing engineers (designers of masonry structures), experts from the Faculty of Civil Engineering of the University of Zagreb, and experts from other Croatian universities. In addition to reconstruction levels, the expert group also proposed, based on experience, estimated cost of repair of individual buildings, and professional building-reconstruction guidelines that will be an integral part of the Law. Estimates were made for some fifteen fully elaborated building examples of variable complexity for reconstruction methods planned in accordance with the Law. Examples were elaborated for family houses, “ordinary” multi-complex buildings of residential, mixed and office occupancy, public buildings with a particular emphasis on hospitals, schools, kindergartens, faculty buildings and cultural heritage buildings. In every example, the unit price per square meter was formed based on interventions to be made during reconstruction, taking into account the level of reconstruction. These unit costs were associated with total gross floor areas of damaged buildings, which were classified not only according to occupancy but also according to the level of serviceability (green, yellow, and red) determined based on rapid on-site inspections of serviceability. This enabled the establishment of rough estimation of costs for the entire city. An estimate of total direct reconstruction costs was thus formed



Urgent Earthquake Recovery Programme – title page and excerpt

for earthquake damaged buildings, which served as basis for definition of required financing. The government of the Republic of Croatia requested from the World Bank a proposal of an Earthquake Recovery Project, and employees of the Faculty of Civil Engineering took part in the estimation of damage, in consultation with the World Bank and the Government of the Republic of Croatia, resulting in the development of the document entitled Rapid Damage and Needs Assessment (RDNA), which contains the data on the damage and losses in the sectors of housing, education, healthcare, culture and economy.

Ever since the earthquake event, the Faculty of Civil Engineering has been in contact with the Ministry of Construction and Physical Planning (MGIPU) and the Government of the Republic of Croatia, and this through a number of letters, in which the faculty placed emphasis on significant contribution of civil engineers in the post-earthquake activities, from the stage of estimation to the stage of reconstruction, the aim being to ensure highly professional and quality-based enactment and implementation of the Law, for the benefit of all citizens.

Employees of the Faculty of Civil Engineering were also active in submitting proposals relating to enactment of the Law, and in this respect faculty representatives were a part of the expert group that took part in formulation of the Law. In addition, as earlier mentioned, they worked in the scope of the working group of experts on the development of technical guidelines for the reconstruction of buildings, which will be incorporated in the Law.



Schematic view of reconstruction levels as related to bearing capacity of buildings (adopted from UERP)

A conference of participants in the earthquake reconstruction effort, organised by the Croatian Chamber of Economy, was held at the Faculty of Civil Engineering on 2 July 2020. The objectives of this conference were to connect science and economy in order to raise awareness about the importance of using domestic products in the reconstruction as given in the Catalogue of Croati-

an Products prepared by the Croatian Chamber of Economy, and to present the manual Urgent Earthquake Recovery Programme to those who will be using it in the reconstruction effort: designers, building operators, contractors, and equipment manufacturers.



Title page of the document Rapid Damage and Needs Assessment

Scientific achievements in the study of earthquakes and possibilities for preventing their harmful effects

Many earthquake-related investigations have been conducted worldwide over the past several decades. In addition to the study of earthquake activity as a phenomenon, an extensive research has also been conducted in relation to the behaviour of structures, structure computation methods, inspection of structures, methods for strengthening structures and their influence, methods for estimating seismic risks imposed on individual structures or a wider area, etc. As the south and southeast European areas are susceptible to frequent and strong earthquakes, most research is understandably conducted in these areas (Italy, Greece, Portugal, Slovenia, Croatia, etc.). Croatian researchers, and among them a considerable number of experts from the Faculty of Civil Engineering of the University of Zagreb, took part in a number of domestic and international scientific projects and conferences related to earthquakes, and wrote numerous papers in national and international research-oriented journals.

After an earthquake event, it is first of all necessary to conduct rapid and then detailed inspections of damaged structures, all based on proper coordination and interaction between a number of services, including civil engineers. Employees of the Faculty



Positioning of a deformation testing device

of Civil Engineering took part in the international project known as Matilda (MultinATIONAL module on Damage Assessment and Countermeasures) which was a part of a greater programme financed by EC (Civil Protection Preparatory Action on an EU Rapid Response Capability), and was realized in the period from 2014 to 2016. The main idea behind the project was knowledge transfer (Italy) and development of capabilities for dealing with international emergencies, activated as needed in the scope of the EU Civil Protection Mechanism, and to ensure the best possible coordination of civil protection activities in the case of disastrous events.



Example of the use of photogrammetry in building analysis

The results and experience gained during the realisation of this project have been gradually implemented into the Croatian system through appropriate drills (Istria 2017, ZG POTRES 2018, Cascade'19) and workshops, and through the involvement of civil engineering experts in MUSAR teams, etc. In the scope of these activities, a Croatian team was invited in December 2019 to Albania to estimate damage to earthquake stricken buildings.

In order to properly estimate the behaviour of existing structures and the way in which new structures should be shaped, it is indispensable to test materials and elements used in such structures. Significant tests conducted in this respect include testing of dynamic parameters of structures (such as vibration period) and testing of shear strength of mortar used in walls. Experts from the Faculty of Civil Engineering have been testing seismic behaviour of masonry and concrete structures for a number of years now. In addition to analyses and tests that are directly related to earthquake resistance, employees of the Faculty of Civil Engineering of the University of Zagreb also have a long-standing experience in the study of mechanical properties of all types of structures.

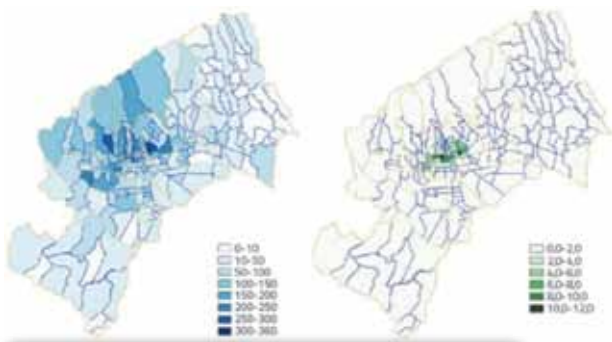
In addition to on-site testing of existing structures, many laboratory tests are also conducted so as to try to understand the behaviour of individual details of existing structures or improve the way in which new structures are shaped. Structural tests are a basis for all other analyses and, in recent times, traditional test procedures are extended by including new methods such as video camera surveying, i.e. digital image correlation (DIC) techniques and photogrammetry. This has enabled experts to detect structural damage more accurately and to monitor change in the deformation and propagation of damage.



Testing seismic resistance of timber-glass systems

After testing aimed at determining the condition of buildings, additional analysis can be made to estimate future behaviour of structures and the level of their mechanical resistance and stability. A risk analysis has to be made to determine the seismic hazard at the level of the entire city. This analysis has been performed for the city of Zagreb by experts from the Faculty of Civil Engineering. A study for the remedy of earthquake damage has been made for the city of Zagreb in the period from 2013 to 2019.

In early 2020, Croatian Science Foundation financed the installation research project *Assessment and rehabilitation of existing structures (ARES) – development of contemporary methods for masonry and timber structures*. This five-year project is conducted under the guidance of an assistant professor from the Faculty of Civil Engineering. The pro-



Cost estimates in millions of euros and cost estimates in millions of euros per hectare for Zagreb

ject focuses on abatement of earthquake risk for the existing masonry and timber structures, and is considered highly significant as a considerable number of such structures are situated in Zagreb and throughout Croatia.

In order to avoid unacceptable behaviour of new structures, the existing ones must be improved and new systems should be developed so as to achieve a satisfactory level of seismic resistance. In addition to the project related to seismic assessment and rehabilitation of masonry structures, some other research projects aimed at testing behaviour of structures are also under way at the Faculty of Civil Engineering. The scientific research project *Behaviour of Steel-Plate Shear Walls under Cyclic Load*, significant for the study of steel structures subjected to seismic action, is in progress at the Faculty of Civil Engineering.

The scientific research project *Vetrologium*, which ended at the beginning of this year, focused on the study of behaviour of timber-glass composite systems. Among others, these new systems were subjected to numerous seismic resistance tests.

Geotechnical Department of the Faculty of Civil Engineering of the University of Zagreb will conduct detailed specialist investigations in order to estimate the condition of the Sava dykes and flood protection dykes in the territory of the City of Zagreb and Zagreb County. These investigations are aimed at determining the condition of the flood protection systems on the left and right sides of the Sava River after the recent earthquake. The total length of the dyke to be investigated is 147 km. These dykes are included in the flood protection sector C (upper Sava reaches), which is operated by the water company Hrvatske vode.



Use of ground penetrating radar (GPR) method for estimating condition of rail embankments

It can be seen from the presented research projects (backed by numerous published research papers) that the Faculty of Civil Engineering has been closely monitoring and following current international trends and, thanks to its comprehensive scientific activity, it has greatly contributed to the development of the domestic, and also international, civil engineering profession. In addition, the knowledge gained during many years of work in science, education and profession, guarantee a safe and quality based development of civil engineering in Croatia, as well as a continuous improvement of earthquake estimations, strengthening methods, and structural design procedures.



ARES project research plan

Volunteers of the Faculty of Civil Engineering who took part in post-earthquake activities

Faculty of Medicine

The strong earthquake of 22 March 2020 inflicted damage to most buildings of the Faculty of Medicine of the University of Zagreb, and thus damage was registered at the buildings at Šalata and Zeleni brijeg, and at the faculty premises at the University Hospital Centre Zagreb, University Hospital Centre Sisters of Mercy, at other university hospitals and at some additional healthcare units where teaching premises of the Faculty of Medicine are located. Damage was inflicted to numerous teaching facilities, classrooms, research laboratories, offices, spaces destined for the implementation of scientific and professional projects and other activities, clinics, clinical departments, ambulatory care centres, Central Medical Library and the libraries at university hospitals and at the School of Public Health Andrija Štampar. The access to many buildings was made hazardous due to damage, which hindered their use. Already during first hours after the earthquake, the premises and equipment of the Faculty were inspected and protected, and expert assistance was called for so that the extent of damage can be determined.



Old deanery building (Šalata 3)

Extensive damage to Šalata buildings includes damage to deanery buildings and other buildings in which faculty departments are located. Out of the total of eight buildings situated at Šalata, a red mark was assigned to four buildings and yellow mark to two buildings. The main faculty building – the old deanery building (Šalata 3) suffered significant damage to the roofing structure, which is why urgent repairs involving temporary solutions were made already during the summer. In that building, earthquake damage was inflicted to the Department of Histology, Department of Chemistry, Department of Biology and Department of Physiology, as well as to other segments of the building, which is why remedial activities were conducted in the course of summer and autumn months. As to the new deanery building (Šalata 3b), the first post-earthquake inspection revealed that the bu-



New deanery building (Šalata 3)

ilding is unusable, and so a repair design was made and remedial activities were conducted. The greatest damage was inflicted to load bearing columns at the Central Medical Library at the ground floor of the north part of the building. This building is also home to the Chair of Physics and Biophysics where smaller damage has already been remedied. As the neighbouring building at Šalata 2 suffered smaller damage and was structurally stable, employees of the Faculty who were unable to use their own spaces in other greatly damaged buildings moved to this building after completion of some minor repairs. This has enabled resumption of regular activities as needed for normal functioning of the Faculty.

Considerable damage was registered at the building situated at Šalata 4 (former clinic of the University Hospital Centre Zagreb), especially on higher floors and at the roof structure, and so roof-structure remedial activities were realized soon after the earthquake. The damage was registered at the main amphitheatre auditorium and at lecture rooms situated at the ground floor of the south wing of the building. It was determined that the building is unusable, and further analyses showed that considerable civil engineering interventions are required; additional analyses and design activities have for now been postponed. In previous years, this building was included in the project of the



Building Šalata 4



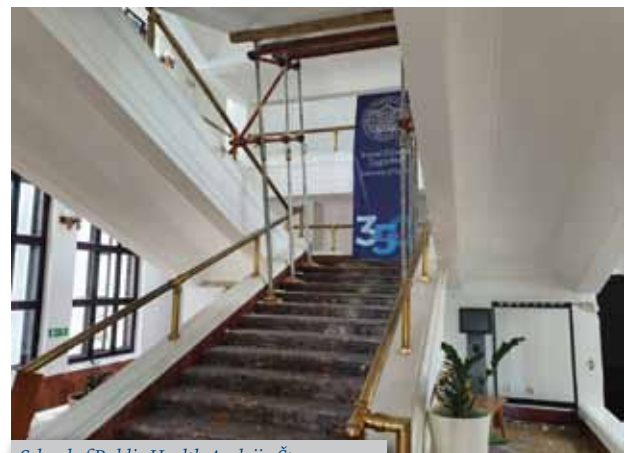
Building Šalata 10

Biomedical Research Centre Šalata (BIMIS), which was included among strategic projects in the National Development Strategy of Croatia for the period until 2030 and, considering the very high level of preparedness of the proposal, financing was approved for the preparation of design documents for the implementation of the infrastructure project and for institutional reforms. Further activities on this project have to be carefully considered. As to the Pathology Department building (Šalata 10), significant - partly structural - damage was registered in most parts of the building, in specific teaching areas (for microscoping, and in seminar rooms; however, exceptionally great damage was registered at the museum with valuable collection of pathoanatomical preparations (great auditorium)). With the assistance of employees, students and BBB members, the furniture and various devices were relocated so that repair works can be carried out and to enable resumption of activities. Damaged parts of plaster were immediately removed from the walls and ceilings, damaged roof structure was remedied, and a part of the structure at the ground floor and first floor - next to cracked part of the external facade bearing wall - was supported with steel girders. Heaviest earthquake damage was registered at the Centre for Electronic Microscopy, which required special interventions, and all equipment - other than heavy electronic microscopes - was moved to the Croatian Institute for Brain Research, as this institute has a laboratory for the preparation of electronic microscopy samples.

Considerable earthquake damage was also registered at various parts of the building that accommodates the Anatomy Department, Pharmacology Department and Department for Forensics and Criminology (Šalata 12). It was established after the earthquake that the following areas are unusable: central hall with staircase, areas next to the central staircase and dissection rooms, lecture room, and pharmacology library, anatomy exercises room, and big lecture room for anatomy. The work was allowed only in the basement part of the Mineralized Tissue Laboratory, where the experimental activity related to the OSTEOPROSPINE project was

carried out almost without interruption. After rapid inspection and detailed verification of the building condition, some most urgent remedial works were conducted, and the cleaning started in May. The analyses showed in which parts of the building the load bearing wall statics is not greatly perturbed, and so the works must be carried out there to enable proper completion of the academic year. In early June, structural engineers checked the complete work, and permission was obtained for the entry of students in some parts of the building. Due to chimney collapse, the Department for Forensics and Criminology suffered damage in both old and new (under construction) DNA laboratories and at the access to the laboratory, while the Department Museum also suffered damage, with valuable exhibits being broken.

The School of Public Health Andrija Štampar (Rokfellerova 4) also suffered considerable damage, especially at the central staircase where a big crack opened between the first and the second floors, which was urgently propped up with steel girders; damage was registered at the external west side wall, lintels above the offices, partition walls, lecture rooms, and other teaching spaces. Spaces accommodating the Chair of the Faculty of Medicine and library also suffered damage. Building repair works are currently under way.



School of Public Health Andrija Štampar

The estimation of damage, and planning of remedial works, were mostly conducted by lecturers and associates of the Faculty of Civil Engineering, working in concert with the employees of the Institute for the Protection of Cultural Monuments. Damage to individual buildings of the Faculty of Medicine, and conduct of teaching activities under the influence of the earthquake and COVID-19 pandemic, is described in detail in the journal of the Faculty of Medicine MEF.HR. This material can be found at: https://mef.unizg.hr/wp-content/uploads/2020/08/Mef_1-2020_web-3_final_min.pdf

Nada Čikeš, AMAMUZ,
Vice-President of the ALUMNI UNIZG Association

Faculty of Chemical Engineering and Technology



The strong earthquake (of magnitude 5.5 on the Richter's scale) that hit Zagreb and the surrounding area on Sunday 22 March 2020 at 6:24 a.m. caused significant damage to the buildings used by the Faculty of Chemical Engineering and Technology, which are situated at the following addresses: Marulićev trg 19, Marulićev trg 20, and Savska cesta 16. That is why the faculty management banned employee from entering the buildings until a proper certificate on their structural safety is obtained.

Due to the epidemic situation caused by the new coronavirus, all teaching activities were fully conducted remotely even before the quake, and so student access to the faculty buildings was also banned. The condition of buildings was reported to appropriate services of the city of Zagreb, to the Ministry of Science and Education, and to the University of Zagreb. The inspection of buildings was completed already by Tuesday evening, as by that time structural engineers inspected the buildings and classified the damage: green mark was given to Marulićev trg 20 (rapid inspection revealed that the building can be used without limitations, chi-

mneys must be repaired), while yellow marks were given to the remaining two buildings (temporarily unusable). All damage to buildings was documented by photos, and additional detailed inspections were then conducted.

In order to remedy the buildings to the level needed for hold classes and other activities, urgent repairs were made based on detailed findings presented by structural engineers: both buildings at Marulić Square were repaired by removing big boiler room chimneys which were cracked and in danger of caving in. More than fifty detached and damaged small roof chimneys were also removed, and a considerable number of roof windows were replaced. The vault above the main entrance, and the detached part of the Savska building attic wall (which threatened to fall onto the street), were strengthened. Many spots presenting damage to wall and ceiling plaster were also repaired.

Based on the decision of the government of the Republic of Croatia, students were allowed to return to lecture rooms starting 11 May and, from that date onwards, the Faculty – as the first faculty of the University of Zagreb – started to conduct lectures and exercises, as reported by national television HTV. At that moment, all premises used by the Faculty were fully serviceable and safe for use without any limitations. As for subsequent works, it should be noted that new boiler room chimneys were erected which, combined with earlier repair of all gas installations and procurement of necessary approvals, enabled proper heating and regular activities in all faculty buildings. All works were conducted in consultation with other users of these buildings.

Approximately HRK 2.6 million of the faculty's funds have so far been spent for the conduct of some of the indispensable repairs. Additional indispensable repairs will be conducted after the end of the winter. We do hope that seismic repair of all buildings will be conducted in the near future, in accordance with the Law on reconstruction of earthquake-damaged buildings.

Ante Jukić, vice-dean for business administration

Faculty of Textile Technology

The magnitude 5.5 earthquake on the Richter scale that hit the city of Zagreb and its surroundings on 22 March 2020 at 6:24 a.m., followed by a series of aftershocks during the day, caused damage to the main seat of the Faculty of Chemical Engineering and Technology, which is situated at Prilaz baruna

Filipovića 28a, while the faculty building at Savska 16, recently fully renovated via a EU infrastructure project, did not suffer damage that would impair its functionality. After the earthquake, in the morning hours of Monday 23 March 2020, the faculty building was inspected by the faculty dean,



members of the Occupational Safety Board, head of Technical Services, and an electrician. The building was also subsequently inspected by the Civil Protection employees.

Buildings situated at Prilaz baruna Filipovića 28a were built in several distinct periods: the first period of construction ended almost 82 years ago, the second period lasted from 1963 to 1965, and the third construction period took place in the 1980s with addition of the third floor, while the new building was built in the years 2000 and 2001. It is important to note that some faculty buildings are shared with the Secondary School for Fashion and Design (Prilaz baruna Filipovića 30), so the building forms a single structural assembly. In addition to the visit and general visual inspection – which revealed smaller damage to the walls of some rooms, and some overturned and fallen objects – we were particularly interested in two things: possible damage as related to the extension of the building, and the situation in the Textile Design and Management Department as some unfavourable processes in the older building, processes and phenomena affecting the structure of that building, were earlier noted on the premises of this Department. In effect, in June 2013 the then management of the Faculty ordered a detailed structural evaluation and assessment of the current condition of the structure, with the proposal of short term, medium term and long term remedy of this cracking-affected building and so, in January 2020, an additional recommendation of activities was made, as based on structural evaluation made in 2013. Furthermore, we had to determine the level of safety regarding the use of the building by administrative services that had access to the building in March 2020 based on specified duty hours and work in shifts, as made necessary by “lockdown” due to the Covid-19 pandemic. It was also necessary to establish the level of damage to laboratories in which we soon expected to have contact exercises (practicums) that were stopped in the early March 2020.

After the visit by Civil Protection employees, and

following the subsequent inspection by experts from the Earthquake Engineering Department of the Faculty of Civil Engineering, it was established that greater damage was caused on the old building, at the juncture between the old and new buildings, which was immediately marked in red and, a few days later, in orange (yellow), which especially referred to the staircase well of the old building. In effect, staircases are always a very sensitive issue in every building as they have to provide for safe evacuation of users in case of some future disasters. The new building was in use and, as it showed only some negligible damage, the decision was made to permit its continued use. However, it should be noted that seismic analysis was not made for any of the buildings situated in the area as, at that time, technical regulations for the construction of buildings in seismic areas did not exist. The buildings are thus not seismically resistant to the intensities mentioned in the seismic map for the City of Zagreb and its surroundings.

A detailed inspection of some parts of the faculty buildings, and an expert opinion of structural engineers on the serviceability of the buildings, was requested in May 2020 to enable the finalisation of teaching activities in the academic year 2019/2020, and to organise the start of the new academic year 2020/2021. Based on the above-mentioned expert evaluations of the building condition in the period from 2013 to May 2020, an Earthquake Damage Estimate was established in August 2020 as a separate document. For some parts of the old building, and especially for the parts of the building occupied by the Textile Management and Design Department, it is impossible to differentiate between levels of damage before and after the earthquake by mere visual inspection, under the assumption that the earthquake negatively affected earlier damage, increased such damage, and caused new damage. According to the Earthquake Damage Estimate from August 2020 made by the expert witness for the field of civil engineering, this can be done only after preparation of the detailed design and im-



plementation the design of remedial work. This remedial work must include: geotechnical investigations, detailed analysis of water supply, water evacuation, and water drainage installations with rehabilitation proposal, determination of cracks with rehabilitation proposal, foundation soil improvement design, repair of water supply, water emptying and water drainage installations, improvement of soil, and repair of structural parts of the building.

In July and August 2020, thanks to good collaboration with the Secondary School for Fashion and Design, some parts of the connection zone were remedied albeit only partially and superficially by the city of Zagreb without any cost for the faculty, while renovations of the Laboratory for Organic Chemistry of the Applied Chemistry Department, which suffered considerable and readily visible damage, were conducted using our own funds in September 2020.

Although most non-teaching personnel worked on-line from home, we have permitted access to

the Faculty premises to some administrative, professional, technical and accessory services which, fully respectful of epidemic measures and damage marks placed after the earthquake on some parts of the building, came to the Faculty to perform only the most essential activities, i.e. the activities that permit an undisturbed realisation of all teaching and business processes at this Faculty.

In these unprecedented times, highly challenging to our institution, city and country, when we witness the way of life and events that many generations have not experienced, the Faculty management extends its thanks to all its employees for having understood the seriousness of the situation, for their dedication, self-sacrificing work and accountability, which has enabled us realise, by working in synergy, the basic activities of the Faculty as a public institution of higher learning.

Gordana Pavlović

Dean of the Faculty of Textile Technology

In the term of office from 2018/2019 to 2019/2020

Faculty of Architecture URBAN RECONSTRUCTION – from possible to desirable future



Publication Urban Reconstruction _ Urban Regeneration of the Lower Town, Upper Town and Kaptol - Historical urban units of the City of Zagreb

Systematic rehabilitation of urban centres in Croatia has for the most part failed to be realised, and the same can be said for the announced but not yet implemented remediation of areas after legalisation of illicitly built structures. Some activities are conducted on an ad hoc basis, case by case or project by project. This is also facilitated by current election policy at the local level, and by frequent changes in city management. Politicians are unfortunately, due to the existing political framework, mostly focusing on activities that can be realised within two or three years, the objective being to show results that they most often use for pre-election purposes. There is therefore no interest in

long term planning nor in the strategic definition of our physical environment, and it is precisely in this category that we may include, as long term projects, the projects of urban reconstruction and regeneration.

Neither in general legislation (the exception being the *Law for renovation of monument heritage in Dubrovnik and other immovable cultural property in the vicinity of Dubrovnik*) nor in practice can we find a clear position on what the process of urban renovation/regeneration should specify and comprise, who organises, implements and controls this process, and who are the partners in its financing. For example, an integral urban centre renovation policy, as part of the Zagreb urban master plan, is not clearly defined, moreover, it is totally absent from it. Comprehensive professionally organised studies for the protected historic urban fabric of the City of Zagreb have not been conducted for a long time, and it is now high time to start this process as the city centre is rapidly and increasingly losing its momentum. Due to unresolved property rights issues, accessibility, parking and parking garage policies, poor space management and unclear urban renovation programs and objectives, occupants and amenities are gradually moving out of city centres, and the quality of life in such central areas is deteriorating. Due to inconsistent urban policies, unclear and nonexistent vision of the city and its priorities, unprepared urban development

and renovation plans, lack of long-term financing programs, activities focused on renovation and regeneration of urban centres are on hold and will have to wait for better times. The current situation is also complicated by the lack of harmony between two legacy planning systems: urban planning, implemented by the Ministry of Physical Planning and Construction, and strategic planning, implemented by the Ministry of Regional Development and EU Funds. Thus all activities are mostly limited to sporadic pilot projects (such as those for energy renewal of individual buildings) or to inadequately led projects for renovation of individual blocks (such as the Flower Square Project in Zagreb), all under the pressure of investors and capital, resulting in public, general and common interests being neglected for the benefit of profit and private interests.

The events following the March 2020 earthquake, and the need for reconstruction, have spurred once again the need for comprehensive deliberation of urban renovation in Zagreb. Urban renovation/regeneration/reconstruction/rehabilitation has to be properly prepared and planned. It must be monitored by citizens, and guided by a proper work plan and renovation concept, financing policy, and programme of activities.

The renovation concept must be devised based on consensus and according to appropriate transparent methods of work in all segments. As all elements of the protected historic heritage are not of equal value, adequate models will have to be used in the renovation process. It is important to plan staged delivery and to properly devise the financing structure, using an approved economic model. Primarily, it is necessary to consider and map the identity or branding of the city/district given its unique atmosphere, people and activities (fashion centre, arts and crafts....). Specific programs should be defined for individual streets/blocks to reflect their uniqueness. Furthermore, these streets/blocks should be improved to fit within the fabric of the larger district or area (Lower Town). Citizens should be involved throughout the entire planning process, as their participation and feedback will lead to the selection of the best quality solution. These are the basic guidelines of planning. However, special attention must also be paid to another important part of the process of complete renovation: city management and the use of incentives and subsidies in order to properly direct some processes and activities that can not be realised by planning, but solely through synergy. In addition to various EU models and sources of financing (state, city, EU funds, investment funds, citizens, etc.), it would also be necessary to attract appropriate investors and offer them adequate programs and contents. However, investors should not be allowed to dictate such contents and capacities or choose locations they consider most sui-

table, thereby neglecting public interests. During renovation efforts, it is strongly recommended to keep existing contents where they are, as both the contents and the people define the city. An interdisciplinary approach and synergy of participants and activities is extremely important as a means to change current trends, i.e. individual elements should not be solved partially and separately (blocks, facades, parking garages, traffic solutions, etc.). It is precisely this comprehensive consideration of urban renovation and regeneration that has to start from the meaning of space, historic entities and ambience, and from the significance of individual buildings, all this aimed at improving the quality of life in the city centre and attracting residents to these central areas. In addition, it is important to note that every urban renewal is imminently followed by a certain level of modernisation due to new standards, increase in the quality of life, and use of new technological solutions.

When Zagreb found itself in a similar situation after the 1880 earthquake, it is through renovation efforts, new construction, and new regulation of spaces, that a good quality central European city centre was formed. It is in the same spirit now that systematic reconstruction and accompanying modernisation can result in a 21st century city centre of which the citizens of Zagreb will once again be proud.

By generally deliberating on the vision of the city's development in response to the goals set out for the future, which also includes the planned urban transformation and urban renewal of the city, it may be said that the results of the planning activities can be quite varied. Depending on the predefined vision and achieved results, various directions of future transformation of cities can be envisaged (Norman Henchey 1978 in Future Cone):

- possible future (any kind of future),
- plausible future (future that makes sense),
- probable future (very likely to happen),
- desirable future (the best that can happen).

As it can be assumed based on the experience from other European cities that the urban renewal of the historic urban entity of the City of Zagreb is likely to last several decades, when setting goals for the future the efforts should be made to pass from the category of "possible future" i.e. from any kind of uncontrolled future, to the category of "desirable future", which involves the best that can happen and be realised. The precondition for this is the vision about how to proceed, a good and clearly structured organisation, an interdisciplinary approach, clearly set goals and implementation measures, a sustainable model of financing, measurable results, and also accountability of each and every participant from the state and city, down to every participant in the renewal process.

Tihomir Jukić, Ana Mrđa and Kristina Perković

AMCA Toronto: Humanitarian donations



The capital of Croatia Zagreb and its surroundings were struck on Sunday 22 March 2020 at 6:24 a.m. by a strong earthquake, which caused enormous material damage, and the loss of life of a 15-year-old girl. In the difficult situation of lockdown due to the Covid-19 pandemic, the city of Zagreb found itself completely paralyzed by this earthquake.

As many people lost their homes in the earthquake, donations and assistance came to the city from all parts of the world. In addition to the help received from other diaspora organisations, financial assistance for the reconstruction of Zagreb and for the struggle against the pandemic also came from the association of former students of the universities of the Republic of Croatia now living in Southern Ontario – AMCA Toronto.

It is important to note that AMCA Toronto members also sent financial assistance personally, and here we should specially emphasize the assistance from dr. Mladen, Marina and dr. Maja Seidl, who privately provided financial assistance for the reconstruction of the earthquake damaged children's home in Vugrovec, for which they received a certificate of appreciation from Caritas of the Archdiocese of Zagreb.

From the time it was founded, AMCA Toronto has stood out not only as a cultural-intellectual leader of the Croatian community in Southern Ontario and the wider region, as a link between the University of Toronto and Zagreb and Split universities, and as an initiator and co-creator of the Croatian program at the University of Toronto, but also as an association providing financial assistance to many cultural and research projects and organisations, while also participating as donor in numerous humanitarian efforts.

During the Homeland War, just like many other Croatian associations all over the world, AMCA Toronto focused on the collection and dispatch of assistance to Croatia and Bosnia and Herzego-

vina. Through various humanitarian missions, it collected assistance in the form of food, clothing, and medication. An AMCA Toronto member, the late dr. Marko Mihić, acting through the Knights of Malta, as their prior, delivered great quantities of medications and medical equipment.

AMCA Toronto also donated a significant amount to the Croatian program of studies at York University. In the 1990s, it organised a lottery and raised forty thousand dollars thus enabling continued implementation of the program.



Scholarship holders Klara Stanić, Christopher Holmes and Nina Javor

In the new millennium, AMCA Toronto took part in the initiation and implementation of the Croatian program at the University of Toronto, in which significant funding was invested.

Since 2009, the AMCA Toronto has been awarding scholarships to students of Croatian descent and, since 2017, it has been offering financial support to University of Toronto students for taking part in the summer school program of Croatian language and culture at the University of Split, and this regardless of their family background or descent.

In addition to these programs, it financed donations to Croatian cultural societies based in Toronto, to victims of the 2014 floods in Croatia, and to the water tower renewal in Vukovar.

AMCA Toronto has so far donated approximately US\$ 150,000 and will continue to support young Croatian talent through scholarships, and to collect money for the assistance to the Republic of Croatia whenever necessary.

*Krešimir Mustapić, AMCA Toronto President
and Vice-President of the ALUMNI UNIZG Association*

Regular Assembly Meeting of the ALUMNI UNIZG Association



This year's meeting of the regular Assembly of the Association of societies of former students of the University of Zagreb – ALUMNI UNIZG was held online during the period from 15 to 17 July 2020. Out of a total of 53 members with voting rights 44 members announced their intent to take part in the meeting by responding to the previously send invitation and by acknowledging receipt of the assembly meeting materials. The president of the ALUMNI UNIZG Association professor Mario Šafran Ph.D. presented the report about the work of the Association's Presidency for the period that elapsed since the last assembly meeting, i.e. from July 2019 to July 2020, and reported on the Association's activities during the past year. He pointed out that, due to circumstances caused by the coronavirus (COVID-19) pandemic and earthquake that struck the wider area of Zagreb on 22 March, the activities of alumni have been less intense in this academic year but, despite that, the Presidency of the Association succeeded in completing most of the planned activities. In his report, Mario Šafran also referred to the continued realisation of the project of unified alumni alias e-addresses, and to the Decision on the use of electronic addresses with a uniform alumni domain of students who are in their final years of studies, by which the University Computing Centre (Srce) is granted permission to take official electronic addresses of final year students from the Higher Education Information System (ISVU) and Lightweight Directory Access Protocol (LDAP) of the constituent units of the University of Zagreb, the purpose being to inform the students about the possibility of using addresses with a uniform alumni domain. In this context, messages were sent in September 2019 to final year students and thus more than three hundred contacts were acquired from the students who had just graduated, i.e. from the alumni of our University.

The materials for this assembly meeting also contained the Report on the data collected about the damage to the buildings of the University of Zagreb as caused by the earthquake of 22 March 2020. Societies AMCA-ERF, AMCA TTF, AMCA Paris and

AMAC UK prepared and submitted reports on their activities as well as appendices in which they reported on their activities and cultural events. In addition, Mario Šafran reported that the Presidency of the Association – based on the request of rector Damir Boras - prepared a proposal of operative guidelines for the realisation of strategic objectives of alumni activities, which will subsequently be included in the new strategy of the University of Zagreb.

Petra Lojen and Paula Pavletić

PROPOSAL OF OPERATIVE GUIDELINES FOR THE REALISATION OF STRATEGIC OBJECTIVES OF ALUMNI ACTIVITIES:

1. Immediately improve promotion and technically upgrade possibilities of including alumni in all planned activities / using omnipresent and efficient applications such as creating a profile/group on LinkedIn.
2. Update alumni database SuZg/application/alias alumni email addresses that dates back to 2012 (the database now contains over five hundred alumni addresses), post these addresses on SuZG Internet pages, define a permanent model for sending information about the possibility of using alias alumni email addresses for students in their final year of graduate studies (started in academic year 2018/2019).
3. During this and the next academic year, ensure maximum possibilities for daily cooperation between the ALUMNI UNIZG Association and the SuZG Public Relations Office, to enable joint distribution of information to target groups, and to enable joint organisation of alumni activities.
4. Take instant action to raise the profile and possibilities for performing alumni activities, panel discussions and cycles of lectures "My alumni story" as told and experienced by prominent SuZG alumni, all aimed at motivating others to persevere in these efforts and take concrete action for the benefit of our University.
5. Systematically encourage the establishment of alumni offices at the constituent units of SuZG, while taking simultaneous action to strengthen the professional alumni team at SuZG.
6. Routinely hold coordination meetings between the Association/Rector's office and the managing officials of the constituent units of the University in order to ensure uniform planning and implementation of alumni activities (e.g. charity dinners and other philanthropic activities).
7. Define implementation of the strategy for conducting alumni activities, with detailed plan of realisation of thus defined strategic goals.

AMCA-ERF in 2019 and 2020

The pace of activities undertaken by the Croatian association of former students of the Faculty of Education and Rehabilitation Sciences (AMCA-ERF) varies from year to year, but is always oriented toward its alumni and those who are yet to gain this status. In this issue of Glasnik, we will highlight the activities that marked the end of 2019 and the first six months of 2020.

In the late 2019, we held the second meeting of alumni, generation 1974–1979. The meeting with alumni, attended by forty former students who graduated in 1974–1979, was held at Plitvice Hall in our Faculty. On that occasion, associate professor Snježana Sekušak Galešev Ph.D., professor Mario Šafran Ph.D., and professor Zrinjka Stančić Ph.D. held the following lectures:

- Development of programmes of study at the Faculty of Education and Rehabilitation Sciences, associate professor Snježana Sekušak Galešev Ph.D., dean of the Faculty
- Activities of ALUMNI of the University of Zagreb, professor Mario Šafran Ph.D., president of the Association of ALUMNI of the University of Zagreb
- Faculty of Education and Rehabilitation Sciences – yesterday-today-tomorrow, professor Zrinjka Stančić Ph.D., president



Lecture by M. Šafran

The musical part of the programme “Alumni for Alumni” of this second meeting of generations was realised by students from three faculties of the University of Zagreb (Krunoslav Bambir, student of the Faculty of Mechanical Engineering and Naval Architecture, guitar; Josipa Sušilović, student of the Faculty of Teacher Education, first vocalist; Ana Miljević, student of the Faculty of Humanities and Social Sciences, second vocalist; Magdalena Batinić, student of the Faculty of Education and Rehabilitation Sciences, Rehabilitation of persons with visual impairment, third vocalist). They performed three songs: “Yesterday”, “Believe in Love” and “Christmas is coming”. The meeting was garnished with a buffet reception organised by the Faculty and occasional gifts (bag, ERF brochure, notepad, all with ERF logo).

The Meeting of Generations was organised by



2nd Meeting of Generations

members of the Presidency (Silvana Bilonić-Milošević, Ana Katusić, Sanja Horvatić, Klara Matejčić, Zrinjka Stančić) and by members of Supervisory Board of our AMCA (Ljubica Pribanić, Mara Kovačić, Dalibor Doležal, online participation), which were assisted by a group of students attending second year of graduate studies in Educational Rehabilitation (Nikolina Fiolić, Ivana Matišić, Lucija Očašić, Anja Marušić, Tihana Oreč, Petra Plastić, Dijana Podvezanec). Our students were tasked with alumni listing, contacts and surveys, distribution of invitations, and welcoming our alumni. The Annual Assembly Meeting of the AMCA ERF was held on 5 February 2020. In this meeting, a supervisory board member assistant professor Dalibor Doležal Ph.D., following his return from a study tour, presented a lecture with the theme “Taiwan – scientific, educational and cultural advancement”, Taiwan (Republic of China), an Asian country with western influence.



Lecture by assistant professor Doležal

During the first six months of 2020, in the aftermath of the 22 March 2020 Zagreb earthquake and during the Covid-19 virus pandemic, we conducted all our educational, professional and research activities online using Zoom and Teams platforms. As, fortunately, our Faculty did not suffer earthquake damage, some lecturers continued with their usual activities, while students followed all courses remotely. During these demanding months of March, April, and May, our lecturers and students consulted the Internet pages of our Faculty for all relevant information.

Within the scope of the Implementation of the Croatian Qualifications Framework at the level of higher education, Operational program: Human Resources Development 2014 – 2020, project: Qualitative improvement of studies in logopaedics, social pedagogy and educational rehabilitation (ERF-LOSPER), we have now entered the second year of realisation of our professional project.

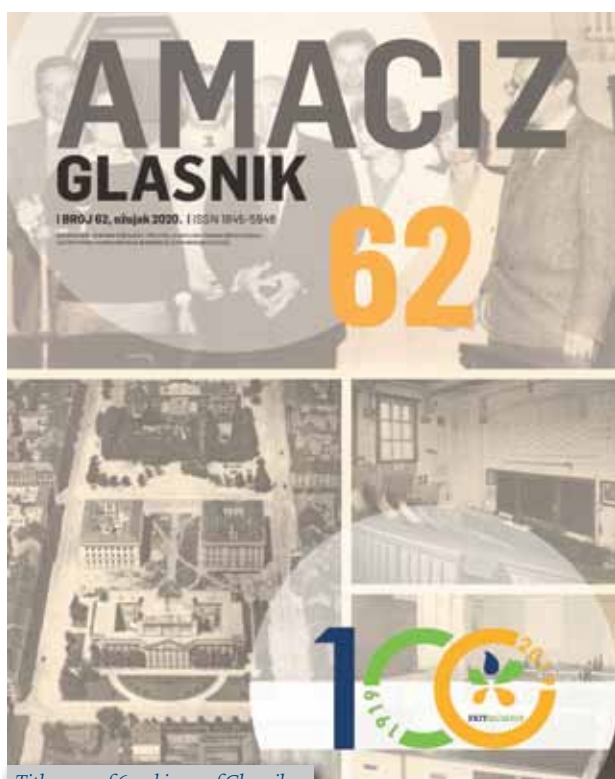
In order to propose three standard professions: logopaedist (speech therapist), social pedagogist, and educational rehabilitator, standard qualifications of masters in logopaedics, social pedagogy and educational rehabilitation, and new programmes of study, we took part in two-day workshops, after which we prepared lists of key job positions and competencies. The leader/chair of our workshops and project consultant was professor Mile Dželalija Ph.D. full professor at the Faculty of Science (Department of Physics) of the University of Split. Due to the Covid-19 pandemic, in the period from March to June we conducted all our activities regarding development of standard qualifications at our respective Faculties, in compli-

ance with all epidemiological measures. Through the mentioned project, the Faculty of Education and Rehabilitation Sciences will provide its contribution to the establishment of the qualifications framework in Croatia, and will connect more strongly and efficiently its scientific-educational activities with the needs of the labour market. Some important elements of the project are also the improvement of educational activity through implementation of a number of educational/training sessions for teachers and students, aimed at strengthening their competencies for teaching/learning, and more particularly for improving the quality management system at our Faculty through development of new internal regulations and a manual on the quality of studies.

In July, we participated in the electronic Assembly meeting of the ALUMNI UNIZG Association, which was held on 17 July 2020. We sent an Appendix with the report on our activities and prepared questions for discussion.

Zrinjka Stančić, AMCA-ERF President

AMACIZ – Society of graduate engineers and friends of chemical engineering and technology studies



Title page of 62nd issue of Glasnik

The thirtieth anniversary of the Society of graduate engineers and friends of chemical engineering and technology studies was to be marked in February this year. Unfortunately, due to unforeseen events that have affected the entire country, and

its capital Zagreb in particular, proper celebration of such an important anniversary was not realised, and it can be said that the AMACIZ section carried out its activities as usual only until March 2020.

The sixty-second issue of GLASNIK appeared in April 2020 and it largely focussed on marking the one hundredth anniversary of the Faculty of Chemical Engineering and Technology – Zagreb, which was celebrated in October 2019. Activities the AMACIZ society conducted over the past period were also described in great detail.

Activities of the AMACIZ section, mostly related to the year 2019, are presented below. Only the members of the visual arts section were highly active even after March 2020. Some attempts were made in early September to activate the choir, but choir practice was very soon stopped.

Academic choir VLADIMIR PRELOG

Last year in March the choir held its traditional annual concert at the Croatian Music Institute (CMI). Sacral music pieces from the Renaissance period (G. Allegri) to twentieth century music (Part, Biebel, Ticheli) were on the program.

In front of a full CMI auditorium, the program was performed by the choir under guidance of our maestro Iva Juras and, after long applause and ovations, the choir performed the song “Believe in Love” by Oliver Dragojević. The song was arranged for the choir by Iva Juras.

A well known conductor Robert Homen commen-

ted on the performance and emphasized: “The choir led by its conductress Iva Juras coped exceptionally well with the demanding task in performing the music. Furthermore, the colour of the choir is warm, the tone is vocally-technically well placed, and all voices are compact, without singling out of individuals. Piano sections of the songs were especially impressive. As to intonation, these sections sounded exquisitely pure.”

In May 2019, the choir participated in the Floraart event at Bundek Lake together with its soloist Ivana Galić and backing instrumentalists. Songs of African and Afro-American origin, forming part of the Black Music Tribute project, were performed by the choir.

In late June 2019, the choir performed during the celebration of the 440th anniversary of the city of Karlovac at an open stage in the centre of the city, in joyful atmosphere, in front of a great number of Karlovac residents and their guests.

The choir also performed in October at the Museum of Modern Art on the occasion of the 100th anniversary of the start of teaching activities at the Faculty of Chemical Engineering and Technology. At the beginning of this event, honoured by the presence of numerous guests the most prominent being the rector of the University professor Damir Boras and dean of the Faculty of Chemical Engineering and Technology professor Tomislav Bolanča, the choir first performed the Croatian anthem “Lijepa naša” and ended with the hymn “Gaudeamus Igitur”. The choir also performed three songs from the Black Music Tribute project with soloist Ivana Galić, drummer Boris Beštak, under the artistic guidance of Iva Juras. The guests that attended this gala event of the Faculty rewarded our choir with a long applause.

This was followed by the choir’s appearance in Varaždin, in the renovated HNK concert hall at Zuberfest. This festival was held for the first time in the honour of prominent music pedagogist and conductor Marijan Zuber. On 15 November, the choir organised, together with its maestro Iva Juras, a gala concert entitled Black Music Tribute at Croatian Music Institute. This concert was the apex of many years of work in the performance of music of African and Afro-American origin.

Section for scientific and professional advancement

Within the scope of scientific and professional AMACIZ colloquiums, several very interesting lectures were given by colleagues from Slovenia, Morocco, Japan, Bosnia and Herzegovina, and Croatia:

- *Presentation of company SCAN d.o.o. and JEOL*, Slavko Žižek, El. Eng., SCAN d.o.o., Kranj, Slovenia
- *Use of Moroccan Alfa fibers as reinforcement in cement mortar*, Prof. Latifa Saadi, Condensed Matter and Nanostructures Laboratory (LMCN),

Cadi Ayyad University, Marrakesh, Morocco

- *An Overview of the Activities of Laboratory of Hydrobiology, Ecotoxicology, Sanitation and Global Change and the National Center of Study and Research on Water and Energy*, Prof. Naaila Ouazzani, Faculty of Sciences Semlalia, Cadi Ayyad University, Marrakesh, Morocco
- *Core-shell structured poly(vinylidene fluoride)-grafted-BaTiO₃ nanocomposites prepared via reversible addition-fragmentation chain transfer (RAFT) polymerization of VDF for high energy storage capacitors*, Prof. Mustapha Raihane, Laboratory of Organometallic and Macromolecular Chemistry-Composite Materials (LCO2MC), Faculty of Sciences and Techniques, Cadi-Ayyad University, Marrakesh, Morocco
- *Mössbauer Study of Electrically Conductive Sodium Phosphovanadate and Photocatalytic Iron Silicate Glasses*, Dr. Shiro Kubuki, Assoc. Prof., Department of Chemistry, Graduate School of Science, Tokyo Metropolitan University, Tokyo, Japan
- *Synthesis of evaporation systems using mathematical programming*, Professor Elvis Ahmetović Ph.D., Faculty of Technology, University of Tuzla, Bosnia and Herzegovina
- *Nonspecific physical approaches to the study of viruses*, Antonio Šiber Ph.D., Institute of Physics, Zagreb



Lecture by Dr. Antonio Šiber

Visual arts section and AMACIZ galleries

A particular emphasis should be placed on the incredible enthusiasm of our painters who have continued with their activities even after the earthquake and coronavirus pandemic.

They participated in numerous collective exhibitions of visual-arts amateurs of the city of Zagreb:

1. Collective exhibition of visual-arts amateurs of the city of Zagreb: *A leisurely walk through Zagreb*, Centre for Culture and Education, Susedgrad, Argentinska 5, from 14 July to 31 August 2020.
2. Collective exhibition of visual-arts amateurs of the city of Zagreb: *To diaspora with love*, Internet pages of Centre for Culture and Information (CZK) Maksimir, exhibition was set up on 4 September 2020 and is still available.
3. Collective exhibition of visual-arts amateurs of the city of Zagreb: *A leisurely walk through Zagreb*,

Centre for Culture Travno, B. Magovca 17, from 8 October to 26 October 2020.

4. Collective exhibition of visual-arts amateurs of the city of Zagreb: *A leisurely walk through Zagreb*, Centre for Culture, Dubrava, Dubrava 51A, from 19 October to 5 November 2020.

5. 17th festival of visual-art creations, Centre for Culture, Travno, b. Magovca 17, from November 2020 onwards.

Hiking and Mountaineering Section

Hikers and mountaineers gleam with energy and their excursions are still held at least once a month under the AMACIZ motto: "A sound mind in a sound body". The most significant excursions are:

March 2019 – Annual AMACIZ excursion

Desinić – Vinagora - Veliki Tabor - kapelica Marija Magdalena - Grešne gorice

The response was great, two buses with 94 hikers started out toward Desinić where we were greeted by the deputy mayor of Desinić Mr. Milivoj Dravinec who introduced us to the well organised production of milk and milk products in Veronika Desinić. He invited us to visit the town of Desinić which is mentioned in 1334 as *Ecclesia sancti Gheorgiide Zoihla* in the Zagreb Kaptol statutes. It is the birthplace of Đuro Jurica Prejac, who is the author of the beautiful song "In blue plum orchard". We visited the gothic St. George Church and had our first coffee. We visited Veliki Tabor, Grešna Gorica, all this laid out as on the palm of a hand, in the area of no more than 15 km, and this was our plan for the entire day!



In front of the Church of Our Lady of Vinagora

Mirna waterfalls - September 2019

This part of Istria is known as *Terra magica*, and the peak of enchantment is Kotli. Due to its remote position, the village of Kotli has preserved the rural appearance typical of the late nineteenth century, as well as its famous mills that were in full use until 1964. Stone houses are adorned with numerous wooden elements, as wood was used quite often in old architecture of Northern Istria.



Kotli – a view from the bridge

Central Velebit: Baške Oštarije, Premužić path, Dabarska kosa, Ravni Dabar

It seems that no text or photograph could vividly depict the beauty of Velebit and the primordial force of this environment. Also, it is impossible not to be astonished when viewing the visionary insight and persistence of builder Ante Premužić. This all somehow adds on to the accessibility and hospitality of the seemingly inaccessible "Velebit wolf" Mile, our peculiar host at the mountain hut and a folksy poet who adorned an excellent Turkish coffee with a garland of joyful verses.



Going around is easier

November 2019 – Visit to Petrinja

This excursion is an extension of the program devised by my wife Biserka GG and me.

This is a program by which we try to rehabilitate old Croatian towns and show their true value, in response to many years of neglect of their history and Croatian heritage in general.

A Croatian travel writer and a true aficionado of Croatian heritage once said: "Homeland is loved with legs" and so the excursions we will continue to organise will be hiking tours through Croatian towns during which we will get to know their heritage under the motto: "A sound mind in a sound body". Petrinja is located in the area of the lower Kupa ba-



AMACIZ members and hostess Roberta

sin, in the region of Banovina. The town proper of Petrinja is situated at the right bank of the Kupa River or, more precisely, at the point the Petrinjčica rivulet merges with one of the most beautiful rivers of Croatia – the Kupa River - where a very nice town beach is suitably positioned.

The central and greater part of the town spreads out at the right bank of the Petrinjčica. From the

architectural standpoint, the present day core of the town is shaped by numerous baroque and classicistic buildings that are witness to the peculiar and opulent past of this town that was mentioned for the first time as early as in 1201. Major points of interest are: town park (Strossmayer's Promenade) with an Illyrian Lime Tree from the times of Napoleon's Illyria (1809-1813), Krsto Hegedušić Gallery, Church of St. Lawrence (1780, demolished in Homeland War and renovated in the initial Late Baroque style), and the fountain at the promenade – erected as a first public monument of this town (in 1919 after the public water supply system was built in this city. The fountain was created by sculptor Ferdo Ćus who is also the sculptor of the widely known owls perched on the roof of the Archives Building at Marulić Square in Zagreb – sadly this gifted artist had a short life – he was born in Zagreb in 1891 and he perished in the Black Peak battle in 1914).

*Jasna Prlić Kardum, editor of AMACIZ Glasnik
Antun Glasnović, President of AMACIZ*

First “hybrid alumni gathering” during ZIRP 2020

The Faculty of Transport and Traffic Sciences of the University of Zagreb held its eighteenth international conference Science and Development of Transport (Znanost i razvitak prometa - ZIRP) – ZIRP 2020

The Croatian society of graduate engineers and engineers of the Faculty of Transport and Traffic Sciences of the University of Zagreb (AMAC FSC) co-organises, already by tradition, the ZIRP 2020 and hence enables a better response of alumni to the leading conference of this type in Croatia, wider region, and Europe.

The panel discussion entitled “Transport and logistics in times of COVID-19” was held on 29 September, on the first day of ZIRP. During this event experts from the area of transport and logistics discussed the challenges faced by the transport and logistic sector in this new situation. The following participants took part in the discussion:

1. Andrzej Banucha - PKP Cargo S.A., vice-director for development, investments and marketing
2. Božana Matoš – Ancoris d.o.o., director
3. Estera Rakić – Hrvatska pošta d.d. (Croatian Post), executive director
4. Igor Štimac – Zračna luka Zagreb d.o.o. (Zagreb airport), Head of department for supervision of operative management and maintenance of airport
5. Jenny Carson - European Transport Safety Council, EU Road Safety Exchange
6. Milan Brkić – Rail Cargo Carrier-Croatia d.o.o.
7. Boris Vavra - Primacošped d.o.o., executive director

On 30 September, lectures were presented by eminent domestic and international scientists and experts from the field of transport and logistics, and this under the theme of sustainable and safe transport, and on the changes in modern transport technology and digital tools due to COVID-19 pandemic. The invited lecturers and their themes were:

1. Antonio Avenoso – European Transport Safety Council, Executive Director
“Safer Roads, Safer Cities Improving urban road safety in Europe”
2. Matthew Baldwin – EU DG for Mobility and Transport, Deputy Director-General
“Safe and sustainable mobility and the European Green Deal: COVID-19 and beyond”
3. Prof. dr. sc. Dirk Helbing – ETH Zurich, Department of Humanities, Social and Political Sciences
“How to Upgrade Smart Cities with Collective Intelligence and Collective Action”
4. Prof. dr. sc. Hans Dietrich Haasis – University of Bremen, Chair of Maritime Business and Logistics
“City Logistics of the Future”
5. Prof. dr. sc. Tomislav Josip Mlinarić – University of Zagreb, Dean of the Faculty of Transport and Traffic Sciences
“The Role of the Railway Transport Sector in Sustainable Economic Development of the Republic of Croatia in Times of Covid-19”

The second part of events that took place on 30 September involved presentation of scientific papers. A total of 52 papers were registered, and with

16 papers published in the Springer Proceedings and 31 papers in ZIRP Proceedings. As many as 354 persons registered for participation in the ZIRP 2020, and it should be noted that, on this occasion too, the organiser encouraged and enabled exchanges of opinions, networking and professional advancement of our alumni and other participants in the Conference.

In conclusion, this year's Conference fulfilled all expectations under these "new normal" circumstances, while the results of discussions, lectures and other presentations can be defined through the following open questions:

- How can the trend of reduction in the number of fatalities on EU roads be continued?
- Can modern technology assist in the maintenance of safe and sustainable transport infrastructure and smart cities? If so, how can this be implemented?
- What is the role of transport subsystems in transport transformation?
- How can modern transport technologies and digital tools optimise the number and type of deli-

very vehicles entering cities?

- How can cities of the future regulate operators' requests for the delivery of packages and goods to citizens, all in order to ensure safe and sustainable transport and cities?.

Once again, the ZIRP conference has proven to be an event full of good vibrations, which is the best possible precondition for a similar future gathering and exchange of scientific ideas and professional solutions, all as a function of advancement of the transport and logistic profession, and promotion of alumni activities as a socially commendable behaviour.



ZIRP organisational committee and AMAC FSC presidency

AMA-SFZG

Luciano Batinić, dr.med.dent. – stomatologist and lead soloist at HNK Opera House in Zagreb



Lucijano Batinić

Bass opera singer Luciano Batinić completed his high school studies at Fra A.K. Miošić High School in his native town of Makarska and at Josip Hatze Music School in Split as trumpeter. He graduated from the Faculty of Stomatology of the University of Zagreb in 2004 and, during his stomatology studies, he also studied singing under the guidance of Noni Žunec and at Vatroslav Lisinski Music School in the class of professor Bojan Pogrmilović. He

perfected his vocal technique with the assistance of Vitomir Marof, and at opera studies at La Scala Opera House in Milan, Italy under the guidance of Leyla Gencer, Luciana Serra, Luisa Alva and Lea Nuccia. He took part in many master courses of vocal technique and, in this context, he mentions the following teachers: Christa Ludwig, Bonaldo Giottini and Paolo de Napoli.

He made his debut in Zagreb HNK Opera House in 2002 as Pimen in Boris Godunov. In the same year he became a permanent opera soloist, and in 2009 he advanced to the status of lead soloist. In 2016, based on the decision of the Ministry of Culture of the Republic of Croatia, he was granted the title of national lead soloist of HNK Opera House in Zagreb.

He has played many roles in his voice "genre" the most prominent being the role of Procida in the Sicilian Vespers, King Philip II in Don Carlos, Zaccaria in Nabucco and Fiesco in S. Boccanegra by G. Verdi, Arkel in Pelleas et Melisande by C. Debussy, Daland in the Flying Dutchman, King Heinrich in Lohengrin and Gurnemanz in Parsifal by R. Wagner, Scarpia in Tosca by G. Puccini, and Boris in Boris Godunov by M.P. Mussorgsky.

He regularly appears at Croatian opera houses HNK Ivan pl. Zajc in Rijeka, HNK in Osijek, and HNK in Split. On the international scale, he appears in Komische Oper Berlin, Teatro alla Scala Mi-

lano, Teatro Donizzetti Bergamo, Teatro la Fenice Venezia, Stadttheater Bern, Pfalztheater Kaiserslautern, Staatstheater Wiesbaden, Theater Sankt Gallen, Theater Erfurt, Graz Oper, LNOBT Vilnius, Opera Dijon, MIR Gelsenkirchen, Staatstheater Braunschweig, and in Sächsische Staatsoper in Dresden.

He obtained numerous awards and recognitions, among them the Croatian Theatre Award in Opera for the role of Leporello in *don Giovanni* by W.A. Mozart performed at HNK Split in 2007, the R. Wagner Society Award in Zagreb, 2013, the Vladimir Ruždjak Award in 2006 and 2015, and the Mika Trnina Award in 2013.

What did you wish to become, a stomatologist or an opera singer?

Neither a stomatologist nor an opera singer. As a small boy, I was absolutely terrified of “dentists” and I really had no idea that I might become a stomatologist when I grow up. However, already during my high school days, I knew that I wished to pursue studies in a field of medicine. Later on I selected stomatology for practical reasons as I thought that, once I finish these studies, I will already have acquired a title in a specialized branch of medicine and would be ready to start working in that profession. In my native town of Makarska, opera, as an art discipline, has not been cherished as much as for instance a cappella music (harmony singing) or church choir music. Since my early childhood music has been a very important factor in my life, in fact, I played trumpet and completed primary and secondary music school studies. When I moved to Zagreb to continue my studies, I unfortunately had to stop playing trumpet as my many hours of trumpet practicing did not prove quite joyful to my neighbours. I compensated by starting to sing, which was initially just a pastime during my studies. In that period, I was invited to sing in the INA choir and in the choir of Croatian Doctors Singers. I very soon “surreptitiously” started to regularly attend private singing lessons. When I completed my final year of stomatology studies, I auditioned for a choir member position at the HNK Opera House in Zagreb. At the audition, the then opera director Vladimir Kranjčević said: “This is not for choir... You will be a soloist!” So from my first beginnings at the HNK Opera House in Zagreb I started receiving invitations for soloist roles. I rejected some of them thinking at that time that I was still pretty young and inexperienced for proper accomplishment of such roles. However, by a happy coincidence, the first role I accepted and studied was the role of Pimen in the opera *Boris Godunov* by M.P. Mussorgsky. After I debuted in this role, in the opera in which our prima donna Ruža Pospis Baldani also sang, I realised - as soon as the performance ended - that opera is my true calling in life.

When you introduce yourself, are you a doctor of dental medicine or an opera singer?



In my resume, I always state that I graduated from the Faculty of Stomatology of the University of Zagreb, but otherwise I do not feel it necessary to emphasize this title for professional reasons, as my profession is in fact artistic and, in my work, I am mostly surrounded by artists. I sometimes mention the title of stomatology doctor or doctor of dental medicine when I sing with choir of Zagreb Doctors Singers, then it appears to me as something very pleasant to say. Otherwise, I prefer for my colleagues from the opera to discover this by themselves – this fact always seems to surprise them in a very nice way.

Have you ever worked as stomatologist?

No, never have I worked as a stomatologist! Last time I held the “turbine” in my hands was at the dental pathology exam. After the end of stomatology studies, I have never had any practical experience. Perhaps a colleague stomatologist will let me “remove tartar” to get the “feeling” of how it would be in the profession??

Which is your favourite role?

During my 18 years of professional singing, I have had the occasion to try out many roles, and I am fortunate to have had the opportunity to sing my most favourite ones. However, the genres I like the most and that are most pleasing to my voice are: Italian repertory (Verdi), Russian repertory (Tchaikovsky, Mussorgsky), and German repertory (Wagner). One of the roles I like a lot is that of the Russian emperor Boris Godunov in the opera of the same name by Modest Petrovič Mussorgsky. In June 2019 I sang at the HNK Zagreb Opera House the role of King Philip II in the Verdi's opera *Don Carlo*, which is also one of my favourites.

How do opera singers deal with foreign languages they have to sing, and how do they prepare for scenic appearance?

When I was at the academy in Italy, we had a course called “Scenic art” where we were taught how to understand and adjust the text to our internal experience, and how to present these emotions to the audience. In addition, every role matures over the years with the experience of the singer, and so the same artist will sing it differently when he is let’s say 25, 35 or 45 years old. Foreign languages have not been an obstacle to me: I speak English, Italian, and German. I learned them in school, and I am still perfecting that knowledge in everyday communication with my colleagues.

What international theatres have you performed in?

I performed in the La Scala theatre in Milan, at the Comische Oper in Berlin, the National Opera in Dresden, in Japan (Tokyo), China (Guangzhou), and in many other theatres in Germany (Wiesbaden, Braunschweig), Austria (Graz, Klagenfurt), Italy (Venice, Bergamo), Switzerland (Bern, Sankt Gallen), France (Dijon) and in almost all theatres and events in Croatia, in opera and concert performances.

Do you have happy memories of your student days?

Although I gladly remember my student days, I would not like to relive this part of my life. Student life can be as beautiful as it can be difficult, some-

times even traumatic. The studies at the Faculty of Stomatology are very demanding both in their theoretical and practical segments. Nevertheless, I always remember with fondness the days I went out as a student, the beginnings of my musical career; this was also a post-war period, we gladly went out to sing, party

How is your choice of profession regarded by your colleagues - opera singers, and by stomatologists?

My colleagues singers have never known me as a stomatologist, but as an opera artist. I find it amusing when my colleagues singers regularly remember that I am a stomatologist when they have a toothache, and they often ask me for advice behind the scenes. On the other hand, my colleagues stomatologists are not surprised by my choice because, as I already said, during the studies singing was my hobby in which I was always quite successful. I will always remember an anecdote when a friend of mine from student days commented about me: “If he sings like this, how do the real singers of the Opera House sing?”. My two professions merge at events such as the concerts of Zagreb Doctors Singers or at faculty ceremonious occasions or events which I am always willing to take part in if my artistic obligations so permit.

Interviewed by Hrvoje Brkić, AMA SFZG Presidente

AMCA-Paris Borka Oreb Legras – translator



Borka Oreb Legras

Borka Oreb Legras has been a distinguished member of the AMCA-Paris society ever since its establishment. She has also been its board member for many years. Maja Perinić wrote a small article about Borka’s life and work, and also interviewed

Borka so that the readers of Glasnik can meet this very interesting person and a valued and well-known translator.

Borka Oreb Legras has translated a considerable number of poems and theatrical works. She has cooperated with numerous publications such as “Obsidiane”, “Europe”, “Poesies 95-98”, “Lettres internationales”, etc.

Among many collections she translated either alone or in cooperation with other translators, the following ones deserve special emphasis: “When I become as big as an ant” by Anđelko Vuletić and “Enchanted rain” by great Croatian poet Vesna Parun. Also, with the publisher “Text’iles” she translated poems of Tin Ujević one of the greatest Croatian poets of the first half of the twentieth century, then “Sonnets” by Zvonimir Mrkonjić, and “Poetry” by Dražen Katunarić. She translated works of the three last mentioned authors in cooperation with Fernand Cambon.

As to the works of dramatic authors, which she translated in cooperation with Annie Renoue, a particular emphasis can be placed on “Sopalović Travelling Theatre” by Ljubomir Simović, then “Balkan Spy” by Dušan Kovačević and “Anastazija

Filipovna” an adaptation of “Idiot” by Dostojevski for the Andrzej Wajda Theatre.

Borka Oreb Legras is the author of the translation of “Adventurer at the door” by Milan Begović, a highly significant Croatian author from the first half of the past century. The translation was published by “Most”. She also translated “Before the Dream” by Lada Kaštelan.

Finally, we can cite Guillaume Metayer from the preface to “Pierre Nocturne” (Nocturnal stone), a poem by Drago Štambuk, which Borka Oreb Legras translated into French:

“The first exception is the quality of translation made by Borka Oreb Legras and Tomislav Rajić. Their French version faithfully reproduces the strictness of the original text, thus succeeding in presenting us the image and colour of the beautiful poetic structure. This fineness of the carving work of the translator, this lace achieved despite the stone-hard resistance of two languages, so distant from each other, and so strictly defined, does not fail to impress the reader”.

Borka, you were born in Vela Luka on the island of Korčula, can you tell me what events do you remember the best from your childhood?

The most memorable event was our fleeing to El Shatt. I was six years old. With my mother, aunts and cousins, and many women and children from the island, we left the island in the evacuation organised by the partisan army. On a small boat, we succeeded in reaching not the island of Vis but the Italian shore in the vicinity of Naples. I thought that we would all die but then a cousin of mine took command and succeeded in saving us.

From there, the organisation was assumed by English forces and with a big real steamer we were transported to El Shatt. This was for me a veritable discovery: an English officer – who took to liking me – showed me around the vessel and explained to me all parts of the boat. This was the first time I heard the English language and I liked it very much, which is why, later on, I decided to study it.

After primary school, you attended high school in Split, right?

Yes, the high school period in Split was very interesting. We, high school students from Korčula, hung out together, walked along the promenade, and we often went to the Split theatre for free thanks to a colleague who was an actor. There I listened to popular arias from operas, so that I, so to speak, bonded with theatre. As a translator, I enjoyed translating theatrical texts.

At the secondary school exit exams, I took Russian and English, and later on, I completed university studies in comparative literature and the English language in Zagreb.

When did you decide to come to Paris?

In 1967 I graduated in Russian language studies at the “Ecole des langues orientales”, and later on I obtained my master’s degree at Sorbonne. My

master’s thesis was on the novel “Crime and Punishment” by Dostoyevsky. This novel has had a great influence on me as a person, and also on my intellectual development.

I was granted a scholarship for my studies in Paris. I stayed for a while in the student dormitory “La vigie” which was founded by the French cardinal Tisserant for female students from East European countries. The good idea was that one third of the students were French girls. Thus the girls were able to meet one another, to get to know different cultures and to get better integrated into the French way of life. Even today, I am in contact with some of the students. I learned French at Alliance Francaise.

Your knowledge of Russian enabled you to work for some companies as well?

I worked in the automobile industry, namely for “Renault” in 1968. This was my first encounter with the working class, as I witnessed big demonstrations and strikes. Students, as well as intellectuals, such as J.P. Sartre, were coming to the factory. Renault was selling “turnkey” factories to the Russians, and they needed translators that would accompany clients when travelling in France, and for translation of documents.

How did you start translating poetry?

After I married Guy Legras, we went to live in Bruxelles. I wasn’t interested in politics, I wanted to work with languages and, as poetry has always been my love, the first verses I translated were those of Anđelko Vuletić.

I worked with the publishing house “Obsidiane”. That is a renowned publisher of poetry. There I worked as “attaché de presse” and as translator.

I also worked for many years with MEET “Maison d’écrivains et traducteurs étrangers” in St. Nazerre. In about 1980, the French Ministry of Culture organized the event “Belles étrangères” in which many European countries took part.

“La Biennale de Strasbourg” was a cultural event for Central European countries. The term “Central Europe” was introduced in Paris by writer Milan Kundera.

Croatia wanted to take part in this event and to represent itself as a part of Central Europe.

Professor Vladimir Claude Fisera was a history professor at the University of Strasbourg. He selected Croatian and Bosnian authors for Biennale. However, Biennale exists no more for literature, but Biennale for painting still does. I translated at that time “Adventurer at the door” by Begović, which was introduced at that event. The event was also attended by Bosnian writers.

There is also an event in Die (town in the region Auvergne-Rhône-Alpes) where each year a different country from Eastern Europe participates as a guest. Croatia attended this event in 2012.

*Interviewed by Maja Perinić
AMCA-Paris*



Božidar Liščić (1929. - 2020.)

Academician Božidar Liščić, a renowned Croatian scientist, passed away on 19 April 2020 at the age of 92. He was a regular member of the Croatian Academy of Sciences and Arts (since 1997), and a long-standing professor at the Faculty of Mechanical Engineering and Naval Architecture of the University of Zagreb (FSB).

He was born in Karlovac on 17 January 1929. He graduated in 1954 from the Mechanical Engineering Department of the then Technical Faculty of the University of Zagreb. He was awarded a doctorate from the Faculty of Mechanical Engineering in 1975. He worked at FSC from 1968 to 1982. In 1968 he founded and managed until 1981 the Laboratory for Thermal Processing, and introduced modern technologies. The principal field of work of academician Liščić was the technology of sudden cooling during the

tempering process, as based on the temperature gradient in the surface layer of a cylindrical probe (Liščić-Nanmac probe). He was among the first in Croatia to study thermal procedures for modification of the surface layers of steel via diffusion of nitrogen and grey cast iron by laser beam, the objective being to increase resistance to wear. Based on his method, and with his cooperation, a sensor based system for automatic regulation was designed in 1995 (Ipsen-Liščić sensor).

He cooperated with Končar company in the development of thermal processing equipment and designed a prototype of a salt bath, the first of its kind in Europe.

Academician Božidar Liščić was a visiting lecturer in Ukraine, Germany, Australia, Japan, USA, Slovenia, Austria, Hungary, and India. As an expert for the United Nations Development Program he stayed on several occasions, from 1971 to 1990, in a number of the Middle East and Asian countries.

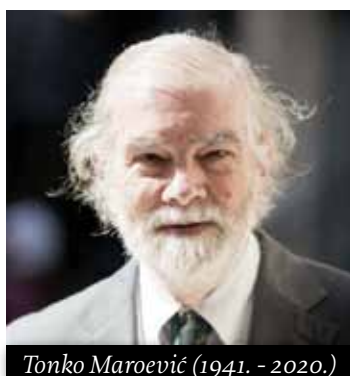
He is the author and co-author of textbooks and two books published by renowned publishers, and he wrote or edited several chapters in nine esteemed scientific and professional books and manuals published in other countries.

He was the president of the International Federation for Heat Treatment and Surface Engineering (IFHTSE) during the 2004-2005 period.

As an official representative of HAZU during the 2003-2008 period he was a member of the Standing Committee for Physical and Engineering Sciences of the European Scientific Foundation (ESF). He presided over the HAZU Scientific Committee for Technological Development.

He was awarded for his outstanding work by the Nikola Tesla award in 1989 and he received the Adolf Martens Medal in 2006.

Mladen Franz, Alumni FSB President



Tonko Maroević (1941. - 2020.)

Croatian academician, professor emeritus, doctor of science, writer, art historian, translator, publicist and cultural worker, Tonko Maroević, passed away on 11 August in his home at Stari Grad on the island of Hvar. His absence is an irredeemable loss to the cultural and academic life of Croatia. Full member of the Croatian Academy of Sciences and Arts since 2002 and vice-president of the Croatian Heritage Organisation until 2010, Tonko Maroević has become, through the many years of this work and untiring enthusiasm, no less than an unavoidable part of Croatian culture, and he has remained equally active in his retirement days, especially through participation in various literary events, as witnessed by presentation of his book on Stari Grad, only a day before his demise.

Tonko Maroević worked as scientific advisor from 1970 and until his retirement in 2011 at the Zagreb Institute of Art History. During this period, he studied modern Croatian art, and wrote numerous essays, as well as literary and book reviews.

He *inter alia* lectured at the Faculty of Humanities and Social Sciences in Zagreb, Academy of Dramatic Art of the University of Zagreb, Faculty of Humanities and Social Sciences in Split and, at some points in his career he also worked as a Croatian language copy editor at the universities of Milan and Trieste.

During his opulent career and professional work, academician Tonko Maroević received numerous awards, such as the Vladimir Nazor lifetime achievement award in 2013 and, for his excellency in poetry, the Goran's Wreath award in 2018. He also received the Radovan Ivančević lifetime achievement award, and a recognition by the Society of Art Historians in 2012. Other awards include the "Dobro jutro more" plaque which was awarded to him during the Podstrana Poetry Meetings in 2011. He received the Tin Ujević award for the collection of poems "Horn trace not without a cause" (1988), and the Poeta oliveatus award in 1997 at the Heritage Days event: Croatia rediviva: Ča, Kaj, Što.

Adopted from the portal www.universitas-portal.hr

■ Dies Academicus held in Zagreb on 3 November 2020



Paying tribute to deceased professors and students of the University of Zagreb

Dies Academicus, a festive event marking the Day of the University of Zagreb, organised on 3 November every year, was not held in physical form this year because of the epidemiological situation. On the occasion of the Dies Academicus, rector professor Damir Boras offered his congratulations to all students, lecturers and associates, researchers and scientists and other employees of the University of Zagreb. He emphasized the significance of this new reunion of lecturers and students, and this in the form of accountability for the success in gaining knowledge, skills, and competences. Addressing the students, he stated that they are responsible for making use of knowledge their lecturers are offering through teaching activities, and also that they should show understanding for the difficulties lecturers and their associates are facing in these times of pandemic, while also inviting them to show proof of conscientious and ethical academic behaviour. Based on the Senate's decision, the title of professor emeritus was awarded to our sixteen retired professors: Borivoj Modlic, Nedjeljko Perić, Branka Aničić, Ivica Grbac, Joso Vukelić, Ivo Družić, Lovorka Galetić, Željko Hutinski, Ljubo Jurčić, Vlado Leko, Vlatko Previšić, Velimir Srića, Vesna Mildner, Drago Roksandić, Peruško Bogdanić, Nenad Puhovski.

The **Fran Bošnjaković Award** of the University of Zagreb for the year 2020, which is awarded for exceptional results in the field of scientific and professional activities, for promotion of the scientific discipline and profession, and for substantial contribution in the transfer of knowledge and education of young experts in the field of technical sciences, was bestowed on professor Vedran Mornar Ph.D., full professor at the Faculty of Electrical Engineering and Computing of the University of Zagreb.

The **Andrija Mohorovičić Award** of the University of Zagreb for the year 2020, was bestowed on professor Zoran Vondraček Ph.D., full professor at the Faculty of Science of the University of Zagreb for his scientific achievements and for promotion of

the scientific discipline and profession, mathematics in particular, and for exceptional contribution in the transfer of knowledge and education of young experts in the field of natural sciences.

The **Andrija Štampar Award** of the University of Zagreb for the year 2020, which is awarded for exceptional scientific results and promotion of the scientific discipline and profession, as well as for substantial contribution in the transfer of knowledge and education of young experts in the field of biomedical sciences, will be subsequently awarded to five laureates: professor Boris Brkljačić Ph.D. and professor Miloš Judaš Ph.D. from the Faculty of Medicine, professor Željko Grabarević Ph.D. from the Faculty of Veterinary Medicine, professor Asja Čelebić Ph.D. from the Faculty of Stomatology, and professor Branka Zorc Ph.D. from the Faculty of Pharmacy and Biochemistry of the University of Zagreb.

The **Ars summa Universitatis Award** of the University of Zagreb, which is awarded for the promotion of artistic discipline and profession, national culture and art, and for exceptional contribution to the transfer of knowledge and education of young experts in the artistic field of architecture, is bestowed on Nenad Fabijanić D.A., full professor at the Faculty of Architecture and Ines Krsić D.A. full professor at the Academy of Fine Arts of the University of Zagreb.

Within the scope of celebration of the *Dies Academicus*, and based on the decision made by the rector and Rector's Collegium of the University of Zagreb, the **Golden Honorary Medal** for the year 2020 is awarded to academician Zvonko Kusić, Faculty of Geodesy, Faculty of Civil Engineering, Faculty of Medicine, and to colonel general Mate Pađen.

In addition, just like in previous years, the rector of the University of Zagreb decided to award special recognitions to students of the University of Zagreb, as well as memorial medals to professors of the University of Zagreb who retired in the academic year of 2019/2020.

Virtual exhibition: University – yesterday, today, tomorrow.



A virtual exhibition entitled *University – yesterday, today, tomorrow* was prepared in the scope of celebrations marking the Day of the University of

Zagreb. The aim of this virtual exhibition was to inform the wider public about the past and present, and about activities of the University of Zagreb and its constituent units, and also to promote the values of its cultural heritage through digitalisation and network technologies. The exhibition was conceived as an overview of key points in the history of the University and its constituent units, represented on a timeline and giving for each item, providing insight into the oldest mention of such an event, its theme or locality. The virtual exhibition timeline also identifies the University rectors from 1874 to this day. Each entry in the timeline has a graphical or textual link to the present, so that the entry can be readily understood by the present day virtual visitor. In addition, researchers can consult complete copies of books, journals, dissertations and archived material related to the University and its activities. Also aimed at teaching the user about history of the University, the virtual exhibition enables consultation of professional and scientific papers and data on historic events related to the University. These data originate from the digital collections of the University of Zagreb, National and University Library in Zagreb, Libraries of the City of Zagreb, and the Croatian Museum of Medicine and Pharmacy. Virtual exhibition can be viewed at the official web pages of the University of Zagreb www.unizg.hr.

■ **Students of the Faculty of Medicine assist in the struggle against coronavirus**



Some three hundred students from the Faculty of Medicine of the University of Zagreb applied for voluntary work and assistance in all activities related to coronavirus. Additional education and student assistance have been approved in this new situation related to the epidemic. The students have been included in activities conducted within the existing medical system, primarily by answering phone calls at the coronavirus call centre, patiently providing epidemiological instructions, conducting epidemiological activities, screening patients at hospital entrances, assisting in sample taking and other activities at tertiary centres, all of which is a part of their practical education at the Faculty. Students thus acquire knowledge and skills that will certainly be useful to them in a few months when they start working. In addition to providing assistance to hospital personnel, they have

also helped to alleviate the burden on the medical system, which is very valuable in these times.

■ **University of Zagreb postage stamp proclaimed as the most beautiful!**



Voters have decided that the most beautiful 2019 postage stamp edition is the commemorative postage stamp “350th anniversary of the University of Zagreb”! The stamp depicting the University of Zagreb building situated at Trg Rpublike Hrvatske 14 was issued as a 16 stamp sheet, and was designed by Jana Žiljak Gršić, a Zagreb based designer. The commemorative stamp sheet “Croatian tourism – Plitvice Lakes” came second, while third place was taken by the stamp “100th anniversary of the Faculty of Veterinary Medicine of the University of Zagreb”. The stamps can be bought at the online store of Hrvatska pošta.

■ **New scientific and informational Universitas Portal launched by the University**

The university has launched a new scientific and informational Universitas Portal, conceived as a media centre and platform for presentation of all events, successes, and projects initiated at the University of Zagreb. The portal leans on the multi-year publication of the University monthly Universitas, but offers more dynamic content and greater media representation in digital world. The public will be informed about news at the faculties, academies and professional societies, achievements and successes of our students, projects launched by our professors, and other interesting events.

■ **University of Zagreb becomes the EIT Manufacturing hub for Croatia**

The University of Zagreb has become the EIT Manufacturing hub for Croatia. The EIT Manufacturing is one of nine innovative communities of the European Institute for Innovations and Technology. Its mission is to create a network of European innovators in the field of manufacturing that would contribute to an increase in the value of European products, processes and services, while also

encouraging the creation of a globally competitive and sustainable manufacturing. The EIT Manufacturing vision is to position EU manufacturers as leading actors in the field of manufacturing-related innovations on the world market.



■ University of Zagreb becomes a part of the European University of Post-Industrial Cities-UNIC

The alliance of eight European universities, including the University of Zagreb, has been granted initial support for the development of the European University of Post-Industrial Cities – UNIC. In addition to the University of Zagreb, the UNIC alliance comprises the University Deusto of Bilbao (Spain), University of Ruhr of Bochum (Germany), Koc University of Istanbul (Turkey), Erasmus University of Rotterdam (the Netherlands), University of Cork (Ireland), University of Liege (Belgium), and University of Oulu (Finland). It is expected that the implementation of the project to establish this European University will formally start on 1 October 2020, and that the first stage of the project will be completed within three years. Three main components of the project, which will mostly be realised online, are: the inter-university campus (UNIC Campus), the academy of pronounced diversity (Superdiversity Academy), and city laboratories (City Labs). The inter-university campus (UNIC Campus) will enable students, researchers, university lecturers, and administrative personnel, to have an unhindered mobility that is necessary for learning, education, teaching, scientific research, work and exchange of services within UNIC. The objective is to ensure full inclusion of all student categories, and this at the European level. The diversity-fostering academy (Superdiversity Academy) encourages universities to accept students and employees of any characteristics and of any origin. The aim is to open and develop new forms of cooperation and mobility of students and employees between the allied universities. The city laboratories (City Labs) refer to spaces for the exchange of knowledge within cities, and between other cities in which the eight universities forming the UNIC alliance operate. The goal is to ensure influence of the universities on the transformation of cities that have lost their former meaning in traditional industries. The eight-universities initiative was launched on 5 February 2020 in Rotterdam by signing the Common charter on the establishment and mission of the new European University of Post-Industrial Cities (UNIC).

■ University of Zagreb and ten constituent units become new collective members of the Croatian Association of Innovators



Upon initiative of the Innovations and Technology Transfer Committee of the University of Zagreb, the Executive Board of the Croatian Association of Innovators decided at its second session held on 2 June 2020 at the premises of the company TEHNIX d.o.o. to accept – in addition to the University of Zagreb – the following ten constituent units of the University of Zagreb as new collective members of the Croatian Association of Innovators: Faculty of Chemical Engineering and Technology, Faculty of Electrical Engineering and Computing, Faculty of Transport and Traffic Sciences, Faculty of Mechanical Engineering and Naval Architecture, Faculty of Civil Engineering, Faculty of Graphic Arts, Faculty of Metallurgy, Faculty of Food Technology and Biotechnology, Faculty of Mining, Geology and Petroleum Engineering, and Faculty of Forestry. By their collective membership in the Croatian Association of Innovators, the constituent units of the University of Zagreb will take part in activities aimed at creating an innovative community that is capable of anticipating, creating and reacting to opportunities that present themselves, and that will attempt to improve organisational activity and create proper foundations for the creation of an innovation system in Croatia, and hence for the development of the Croatian economy founded on its innovation potential.

■ Rector's award for the academic year 2019/2020

A total of 174 awards were granted this year in five categories: 113 awards in the category of individual scientific and artistic works (one or two authors), 25 in the category of scientific and artistic team works (three to ten authors), 6 in the category of scientific and artistic “large” team works (more than ten authors), 5 in the category of special competition-based successes of individuals or teams, and 25 in the category of socially beneficial work in the academic and wider communities.

Paula Pavletić and Petra Lojen