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SERBIAN ACADEMY OF SCIENCES AND ARTS

BULLETIN

OF SCIENTIFIC AND ART RESEARCH

Annual Report for 2020



BELGRADE 2021

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BELGRADE 2021

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Tatjana Čosović

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EDITOR'S NOTE

BASIC DATA ON THE ACTIVITIES OF THE SASA FUND FOR SCIENTIFIC AND ART RESEARCH IN 2020

Introductory Remarks

The SASA Fund allocated the resources received from the Ministry of Education, Science and Technological Development of the Republic of Serbia for the following purposes: scientific research and art projects, scientific publications, international scientific cooperation, the organization of scientific meetings, participation of SASA representatives and their associates in scientific meetings in the country and abroad, acquisition of scientific literature and the like under the SASA Scientific Research and Art Programme.

Activities Financed by the Fund

In 2020, like in the previous years, the SASA Fund for Scientific and Art Research financed the following activities:

Scientific Research and Art Projects

In 2020, the SASA Scientific Research and Art Programme included 27 projects in the fields of mathematics, physics and earth sciences, 20 in the field of chemical and biological sciences, 14 in the field of engineering and technological sciences, 30 in the field of medical sciences, 12 in the field of language and literature, 13 in the field of social sciences, 30 in the field of historical sciences and 7 projects in the field of visual arts and music.

The results of the projects and work of the SASA Committees in 2020 are presented in this Bulletin of the SASA Fund for Scientific and Art Research for 2020.

Publishing Activity

During the year, the SASA published 34 editions, including 12 collections of papers, 10 catalogues, 12 journal issues, 10 monographs, one volume of the *Dictionary of the Serbo-Croatian Literary and Vernacular Language* (Rečnik srpskohrvatskog književnog i narodnog jezika) and one volume of the *Terminological Dictionary of Visual Arts and Architecture* (Rečnik pojmova likovnih umetnosti i arhitekture). More than two hundred authors published 198 papers in the SASA editions. The *Catalogue of the SASA Editions: 2018–2019–2020* (Katalog izdanja SANU: 2018–2019–2020) was presented at the year-end press conference. In addition, 24 manuscripts were technically processed and prepared for printing. The graphic visual design of the make-up of the first volume of a series titled *The Lives and Works of the Women Members of the Serbian Learned Society, Serbian Royal Academy and Serbian Academy of Sciences and Arts* (Život i stvaralaštvo žena članova SUD, SKA i SANU). *The Catalogue of SASA Editions* (Katalog izdanja SASA) was redesigned and prepared for printing.

Cooperation with national and international repositories was successfully carried out. The submission of the 2017–2020 SASA editions in PDF format to the DAIS repository was completed and all editions for the past 30 years were sent to the AVA Centre for scanning.

International Cooperation, the Organization of Scientific Meetings and Participation of SASA Members in Scientific Meetings in the Country and Abroad

During 2020, in the situation created by the Covid-19 pandemic and restrictive measures, the SASA hosted the following events that were either organized or supported by the Sector.

The Sector organized, participated in or supported the ceremonial session marking 800 years of the Nomocanon of Saint Sava; a lecture on “Energy of Graphs – From Chemistry to Spaceships” (Energija grafa – od hemije do svemirskih brodova); Professor Laura Baudis’ lecture titled “All the Dark We Cannot See – Searches for Dark Matter in the Milky Way”; a lecture dedicated to “The 180th Anniversary of Cooperation Between Serbia and France”, which was given by Jean-Paul Bled, Professor Emeritus at Sorbonne and foreign member of SASA; marking the Day of the Central Institute for Conservation; forum titled “Mihailo Marković – Humanist, Scientist, Public Activist” (Mihailo Marković – humanista, naučnik, društveni radnik); international scientific conference titled “Women Scientists in Society” (Žene naučnice u društvu); marking the Day of the Joint Institute for Nuclear Research; international con-

ference titled “COST – European Network of Multidisciplinary Research to Improve the Urinary Stents“; scientific meeting on “Secession Through the Eyes of Domestic and International Law and Its Political Consequences“ (Secesija sa stanovišta unutrašnjeg i međunarodnog prava i njene političke posledice); award ceremony for the students of the University of Arts Faculty of Applied Arts in Belgrade, who created the preliminary designs for the SASA Gold Medal; symposium on “Inequality in Serbia (Nejednakost u Srbiji), Part II; opening of the 19th Serbian Astronomical Conference; scientific meeting on “Philosophy and Science” (Filozofija i nauka), international conference titled “Lexicography and Lexicology in the Light of the Current Issues (Leksikografija i leksikologija u svetlu aktuelnih problema); 8th Conference on Architecture; scientific conference titled “The Thirtieth Anniversary of the United Nations Convention on the Rights of the Child – Contemporary Aspects (Trideset godina primene Konvencije Ujedinjenih nacija o pravima deteta – savremeni aspekti) and round table within the project “Upskilling Pathways: Opportunities for Work-Skills Development for Adults in the Republic of Serbia (Metode radnog osposobljavanja: Nove šanse za razvoj veština odraslih u Republici Srbiji) within the EU Employment and Social Innovation Programme.

Some events that were envisaged in the Plan of Scientific Meetings, Plan of Lecturers and Plan of Lecture Cycles for 2020 had to be cancelled due to the epidemiological situation or postponed to 2021.

During 2020, eight members of SASA passed away (six academicians and two corresponding members). The SASA held commemorative meetings honouring its deceased members Dimitrije Stefanović, full member of SASA (Secretary General of SASA, 2007–2015), Milorad Radovanović, full member of SASA (Vice-President of the SASA Branch in Novi Sad) and Marko Andjelković, full member of SASA (Secretary General of SASA).

As for its international cooperation, the SASA did not have a usually active year: there was no usual number of trips made by SASA representatives abroad, while almost all important meetings of the representatives of international associations of academies were held online.

The SASA is a member of international scientific associations at different levels. It has concluded bilateral agreements on scientific (and artistic) cooperation with 23 national academies of sciences. These agreements cover 69 research projects and anticipate the annual quota of 135 man/weeks for a non-foreign currency exchange of Serbian and foreign researchers for each side. In 2020, only 2 man/weeks were used.

The SASA was visited by H.E. Koen Adam, Ambassador of Belgium to the Republic of Serbia, Branko Ružić, Serbian Minister of Education, Science

and Technological Development, Maja Gojković, Serbian Minister of Culture, and the Rector's Collegium of the University of Priština temporarily settled in Kosovska Mitrovica, when the Cooperation Protocol was signed, and Tatjana Matic, Minister of Trade, Tourism and Telecommunications of the Republic of Srpska.

Activities of the SASA Library

Due to the outbreak of the Covid-19 pandemic and the decisions and measures adopted by the Government of the Republic of Serbia to protect the health of the population, the organization of the SASA Library's work and its way of carrying out the relevant activities had to be changed. For the greater part of the year, the SASA Library was closed for users outside the SASA; its work was carried out on a rotation basis and online wherever it was possible. Due to the closed national borders, the exchange of books with other countries was especially aggravated, while receiving and sending publications were slowed down and occasionally suspended. Due to the pandemic, public procurement conditions were also aggravated, thus making it impossible to purchase books abroad. However, despite the aggravated circumstances, the SASA Library responded satisfactorily to the users' demands and successfully reorganized and adjusted its work methodology.

Under the *Law on the Library and Information Service*, the SASA Library is one of the five pillars of the unified library and information system of the Republic of Serbia. In 2012, in order to meet its legal obligation, the SASA Library signed the *Agreement on the Full Membership of the Library in the COBISS.SR Library and Information System* with the Centre of the Virtual Library of Serbia (which is responsible for managing the shared database and COBISS system) within the National Library of Serbia. In this way, it formally became part of the shared catalogue of the Republic of Serbia (the online catalogue that includes the catalogues of 224 libraries in Serbia). During 2020, the SASA Library created 2,148 bibliographic records in the shared catalogue and took 3,302 from it. Thus, the *COBISSANU* now has 73,355 records. The SASA Library created 3,942 records and supplemented 342 in the CONOR normative database of personal names for individual authors, which forms an integral and compulsory part of the COBISS system.

The Library scanned about 2,000 pages of various materials for the needs of SASA members and other Library users. Under the agreed protocol, the SASA Library continued its cooperation with the SASA Audiovisual Archive and Digitization Centre in the digitization of old and rare books. In accordance with the Plan for the Digitization of the SASA Library Holdings,

made in December 2018, 181 publications from the collection of old Serbian books published up to 1832 were submitted for digitization.

In 2020, the SASA Library acquired 2,713 monographic and periodical issues. It received 1,543 units of materials through exchanges, 350 units of materials through donations and 305 copies of the editions of the SASA and its research institutes. It also received 45 publication volumes ordered by a public procurement procedure in 2019. The exchange database was regularly updated; 22 exchange revisions were made and 5 were then cancelled. At present, 722 institutions are listed as active. The Section entered all newly acquired publications from the general holdings and SASA edition holdings in the electronic catalogue. It created 258 records and took over 980 for monographic publications. An inventory of 1,350 monographs and 1,352 periodical issues was made.

In 2020, the Section for Old and Rare Books and Special Holdings actively processed old and rare editions, as well as the donated or procured libraries (the signatory sign PB stands for “posebna biblioteka” / special library/), which belonged to Viktor Novak (PB 11), Sima Simić (PB 15), Branislav Nedeljković (PB 22) and Danilo Kiš (PB 30). During 2020, Borislav Jovanović’s personal library (PB 40) was processed and the relevant report was made.

Cooperation with the relevant Belgrade City Library was initiated, so that the publications from the SASA Library old and rare book holdings could be entered in the Central Electronic Register of Cultural Heritage. Biljana Jocić is preparing the tables with the data required for the entry of materials in the Central Electronic Register of Cultural Heritage (CER) and at the same time is creating the Old and Rare Book Register.

The Publication Processing Section processed 1,086 newly acquired monographic publications, 955 monographic publications from the old holdings (a retrospective) and 9 titles of the newly acquired serial publications. A total of 542 records were created and 422 were taken over; 690 records were catalogized, 951 UDC numbers were assigned and 1,233 subject headings were entered. An inventory of 955 material units was made. In the CONOR database 2,152 normative records were created and 164 were supplemented.

A retrospective processing of SASA editions began in March. A total of 401 records for monographic publications were downloaded and supplemented; 86 were created and catalogized, and 520 monographic publications were inventoried. The SASA Library electronic catalogue was expanded by 126 new records; 361 records were completely processed, 144 records were catalogized, 241 UDC numbers were assigned and 192 subject headings were created. The jubilee bibliography of Academician Vladan D. Djordjević was

completed and submitted for printing. The work on the jubilee bibliographies of Academician Todor Stevanović. Academician Dragan Škorić and Academician Jovanka Kalić continued, while the work on the jubilee bibliographies of Academician Ivan Klajn and Academician Dimitrije Stefanović began.

In addition, biographies and bibliographies were also made for various SASA editions such as, for example, *SASA Almanac CXXVI* (Godišnjak SANU CXXVI); the data on SASA members were supplemented, revised and proofread; the work on the SASA series dedicated to women academicians included the revision of the bibliographies and references for the texts about 11 female members of the Serbian Learned Society and the Serbian Royal Academy (Katarina Ivanović, Paulina Irby, Isidora Sekulić, Ljubica Janković, Desanka Maksimović, Fanula Papazoglu, Olga Jevrić, Ljubica Marić, Zora Petrović, Ljubica Sokić and Honor Fell). Work began on the contributions to the second volume in accordance with the same rules – the bibliography and references for the text about Milka Ivić were revised; the bibliography of Academician Desanka Kovačević Kojić was prepared and supplemented; literature about her life and work was formed and work continued on the arrangement and format of the units; the material for the bibliography of Milica Stevanović was received and, together with the notes, submitted to the editor of this series, Academician Nada Milošević-Djordjević.

Since January 2020, 50 new users have become the members of the SASA Library and more than 80 membership cards have been renewed. The reading room has recorded 990 visits and the catalogue 400, while 1,065 volumes and about 146 manuals have been issued to users. For the needs of SASA members and other users 3,400 pages have been photocopied and 995 pages scanned. In addition, 248 titles have been issued to users for the work outside the Library. During 2020, the employed in this Section also performed additional tasks such as collecting library and information materials, and processing and supplementing the bibliographies of SASA members at the request of Academician Radoje Čolović. The bibliographies of the corresponding members of SASA, Jovan Slavković (1906–1966), a total of 153 references, and Dušan Borić (1889–1978), a total of 94 references, were completed. Work began on the bibliography of Blagoje Kovačević (1900–1959), a corresponding member of SASA.

In 2020, due to a difficult epidemiological situation and state of emergency in the country, 10 of the 20 planned forums of the SASA Library were held. A total of 6 books (5 monographic publications, one catalogue), one journal and 11 collections of papers by SASA members, SASA editions, as well as the editions of the institutes and centres founded by the SASA were

presente. The speakers at the Library Forum included academicians, university professors and doctors of science (a total of 44 speakers). In 2020, the Forum had an audience of about 800. The texts of the speeches given by the Forum 2020 participants were collected for publication in the 9th issue of the *SASA Library Forum Almanac* (godišnjak “Tribina Biblioteke SANU”).

Since its reopening in March 2017, the renovated SASA Library has been organizing the chamber exhibitions marking the anniversaries of SASA members. In 2020, it organized the following six chamber exhibitions on its premises: Gligorije Vozarović (1790–1848) – on the occasion of the 230th anniversary of his birth (15 January–7 February); Leopold Ranke (1795–1886) – on the occasion of the 225th anniversary of his birth (12 February – 6 March); Zoran Konstantinović (1920–2007) – on the occasion of the 100th anniversary of his birth (11 March–3 April); Ivo Andrić (1892–1975) – on the occasion of the 100th anniversary of the publication of his first books in 1920 (1–16 October); Pavel Jozef Šafarik (1795–1861) – on the occasion of the 225th anniversary of his birth (21 October – 6 November); Milutin Milanković (1879–1958) – on the occasion of the 100th anniversary of his election as member of the Serbian Royal Academy (11 November – 31 December).

In 2020, the eighth issue of the *SASA Library Forum Almanac* came out. In this issue, the texts of the speeches given at the forums in 2019 were published. The the texts of the speeches given at the forums in 2020 were collected and prepared for printing. The ninth issue of this almanac will come out in January 2021. The Library actively participates in the preparation of a new series titled *Accession Speeches by Serbian Academicians (1886–1947)* (Pristupne besede srpskih akademika /1886–1947/). The first volume came out in November 2020 and the second one will be published next year.

Activities of the SASA Galleries

Exhibitions. During the year, the SASA Gallery organized four exhibitions: 1. “Spiritual and Cultural Heritage of Studenica Monastery –Past, Perservance, Contemporaneity” (Duhovno i kulturno nasledje manastira Studenice – drevnost, postojanost, savremenost), 13 December – 15 March 2020. Exhibition author: SASA Corresponding Member Miodrag Marković. The exhibition, which marked the 800th anniversary of the autocephaly of the Serbian Orthodox Church, was prepared by the SASA and Studenica Monastery, in cooperation with numerous institutions in the country and abroad. Exhibition Booklet No. 41 (Izložbena sveska broj 41), Miodrag Marković, *Duhovno i kulturno nasledje manastira Studenice – drevnost, postojanost, savremenost*, Belgrade 2019, contains the introductory note by the SASA

Executive Board, introductory text and history of Studenica Monastery by SASA Corresponding Member Miodrag Marković, reprinted text by Vojislav J. Djurić, *Studenica Monastery – The Tabernacle of the Serbian People* (Manastir Studenica – skinija srpskog naroda) from the catalogue for the first exhibition on Studenica Monastery “Treasury of Studenica Monastery” (Blago manastira Studenice), held at the SASA Gallery in 1988, and the list of exhibits and 75 colour photos. In 2020, outside the SASA series, the representative accompanying publication for the exhibition “Spiritual and Cultural Heritage of Studenica Monastery – Past, Perseverance, Contemporaneity” by a group of authors and Miodrag Marković as the Editor-in-Chief also came out. The publication was also published in English: “Spiritual and Cultural Heritage of the Monastery of Studenica, Past, Perseverance, Contemporaneity”; 2. “Aleksandar Deroko’s Works in the Art Collection of the Serbian Academy of Sciences and Arts“ (Radovi Aleksandra Deroka u Umetničkoj zbirci Srpske akademije nauka i umetnosti), 6 July – 7 October 2020. Its author was Jelena Mežinski Milovanović. Exhibition Booklet No. 42 contains Jelena Mežinski Milovanović’s text “Aleksandar Deroko’s Works in the Art Collection of the Serbian Academy of Sciences and Arts” (Radovi Aleksandra Deroka u Umetničkoj zbirci Srpske akademije nauka i umetnosti), Belgrade 2020. 3. “Vladan Djordjević. The Portrait of a Tireless Begetter” (Vladan Djordjević. Portret neumornog stvaraoca), 3 November – 13 December. Exhibition author: Jelena Jovanović Simić. The exhibition was organized by the SASA Gallery and Museum of Science and Technology (the Department and Museum of the Serbian Medical Society). The catalogue – Monograph No. 151, titled “Vladan Djordjević. The Portrait of a Tireless Begetter” (Vladan Djordjević. Portret neumornog stvaraoca), authored by Jelena Jovanović Simić, was also published (Belgrade 2020). It also includes Ljiljana Ćinkul’s abstract in English. The English translation of the catalogue also came out: Jelena Jovanović Simić, “Vladan Đorđević. A Portrait of a Tireless Begetter”, Belgrade 2020. 4. “Vlaho Bukovac – Painting of Timeless Beauty” (Vlaho Bukovac – slikarstvo neprolazne lepote), 24 December 2020 – 28 March 2021. Exhibition author: Igor Borozan. The catalogue – Monograph No. 152 in the SASA Gallery Series was also published: Igor Borozan, “Artistic Transformation of Vlaho Bukovac in the Context of European Painting” (Umetnički preobražaji Vlaho Bukovca u kontekstu evropskog slikarstva), Belgrade 2020. The English translation of the publication also came out: Igor Borozan, “Artistic Transformation of Vlaho Bukovac in the Context of European Painting”, Belgrade 2020.

The exhibitions staged by the SASA Gallery outside its premises in Belgrade: 1. Aleksandar Deroko’s Works in the SASA Art Collection” (Radovi Aleksandra Deroka u Umetničkoj zbirci Srpske akademije nauka i umetnosti),

Užice City Gallery, Užice, 14 October – 6 November 2020. Exhibition author: Jelena Mežinski Milovanović. A selection of 56 works by Aleksandar Deroko from the exhibition of the same name in the SASA Gallery in Belgrade.

Documentation: The inventory of the Art Collection in the computer inventory list, inventory book and electronic cards continued. Conservation and restoration works: Olga Jevrić's sculpture, "Unfinished Work" (Nedovršeni rad), Inv. No. 42/2018 in the SASA Gallery documentation (Risto Mihić's author work) is underway. Olga Jevrić Legacy: The processing and recording of archival materials in electronic form continued. All scanned units of the hemerotheque were entered into the Olga Jevrić Legacy database. The database was regularly updated. During the year, the Legacy was open for expert guided tours every Wednesday, whenever it was possible due to Covid-19 protective measures. The Legacy had 356 visitors.

Concert-related activities. In 2020, within the cycle taking place at the SASA Gallery 30 concerts were organized, including 68 musicians: 59 soloists and 49 piano accompanists. Due to the health recommendations, there were no chamber and choral music concerts. Most of the participating musicians were from Belgrade. During the year, the concerts were also held by soloists and ensembles from other Serbian cities (Ćuprija, Niš, Šabac, Novi Sad, Pančevo, Požarevac, Kragujevac, Vršac, Knjaževac, Trstenik) and other countries (the United States, Switzerland, Italy). During the concert season, the project titled "Chamber Music of Composers-Academicians, a Travel Through Serbia" (Kamerna muzika kompozitora-akademika, putovanje po Srbiji) was also realized – a series of nine concerts was held in Leskovac, Niš, Knjaževac, Zaječar, Kragujevac, Subotica, Novi Kneževac, Novi Sad and Belgrade, at the SASA Gallery. The programme included the representative 20th and 21st century music works by renowned composers and SASA members: Stanojlo Rajičić, Vlastimir Peričić. Vlastimir Trajković, Vasilije Mokranjac, Ljubica Marić, Dejan Despić, Isidora Žebeljan, Svetislav Božić and Ivan Jevtić.

SASA Gallery of Science and Technology

During 2020, the SASA Gallery of Science and Technology staged 9 exhibitions and, with its regular programme, participated in the event "Museums for 10" (Muzeji za 10) within which the European Night of Museums was also organized. The exhibitions staged in 2020 included "Dreams of the Past and Tradition: Olga Benson" (Snovi o prošlosti i tradiciji: Olga Benson), the exhibition marking the 50th anniversary of the Vladimir Mandić Manda Association of Researchers "YOUNG RESEARCHERS' CLUB – The Beginnings" (KLUB MLADIH ISTRAŽIVAČA – Počeci), the exhibition of

research works of participants in the educational programme of the Petnica Science Centre in 2019 – “A Step into Science“ (Korak u nauku), “The Greatest Figures in Pharmacy: *I Am Searching for a Beginning, Splendour and Hours that Ceased* (Velikani u farmaciji: *Tražim početak, sjaj i sate stale*), “Get to Know Electrochemistry via Belgrade School of Electrochemistry” (Upoznaj elektrohemiju kroz Beogradsku školu elektrohemije), “Dr Djordje Radić (1839–1922) – Agricultural Educator and Scientist, *By His Pen and Work the Greatest Among Them All*” (Dr Djordje Radić /1839–1922/ – Poljoprivredni prosvetitelj i naučnik, *Perom i delom medju svima najveći*), “Candilis, Josić, Woods: Structuring the Common – Documents from the Josić Family Archives (Kandilis, Josić, Vuds – strukture zajedničkog – dokumenti iz arhive porodice Josić), “On Architecture 2020” (O arhitekturi 2020), “Serbian Scientists in Power Electronics” (Srpski naučnici u energetskej elektronici). In 2020, the Gallery published a publication titled “Serbian Scientists in Power Electronics” (Srpski naučnici u energetskej elektronici): Gallery of Science and Technology No. 43 (Galerija nauke i tehnike br. 43).

Conservation and Acquisition of Archival Materials

During the year, the SASA Archives enriched its holdings by the following gifts: Adam Mickiewicz’s “Prayer” from the SASA Library (ACN 1581); photographs of Serbian writers, scientists and artists from Radovan Popović from Belgrade (ACN 1582); part of the legacy of SASA Corresponding Member Dragoljub K. Jovanović from Stanka Jovanović from Portland (ACN 1583); Interrogations of the refugees from the wars of the 1990s from SASA Corresponding Member Slavenko Terzić (ACN 1584) and materials about Serbs in Croatia and Serbo-Croatian relations from Miroslav Mihailović (ACN 1585). The Decoration Collection was increased by 24 decorations donated by Momčilo Ristić, Radoslav Andjus and Veselinka Šušić, so that it now has 1,098 items. Academician Krestić and archivist Borko Masalušić prepared the *Catalogue of the Decoration Collection of the SASA Archives* (Katalog zbirke odlikovanja Arhiva SANU) where 44 donors and 148 selected decorations are presented. During the year, the Reference Library of the SASA Archives was supplemented with 76 new library units. It now has a total of 2,539 titles.

Sorting out the legacies of Dragoljub Jovanović (Historical Collection No. 14684 /Istorijska zbirka br. 14684) and Nikola Tasić (Historical Collection No. 15193 /Istorijska zbirka No. 15193) was completed, while sorting out the legacies of Marko Ristić (Historical Collection No. 14882 /Istorijska zbirka br. 14882) and Andra Nikolić (Historical Collection No. 15188 /Istorijska zbirka br. 15188/) began.

During the last few years, the conservation of archival materials was carried out with considerable difficulty, because the domestic conservation laboratories are overloaded and damaged materials have to wait for treatment too long. All this points to the need to approach the conservation of the materials from the SASA Archives in a new way, which will enable a permanent solution to this problem.

The digitization of the Old Collection of the SASA Archives in the SASA Audiovisual Archive and Digitization Centre continued. So far, 122 manuscripts have been digitized. Work began on drafting a rulebook on the use of digitized materials, which will clearly define the relationship between these two Academy units, determine the right to use the scans and conditions for their public availability.

Dr. Ivana Spasović participated in one international and two domestic scientific meetings where she made a notable impression by announcing the results of her research, based in part on the materials of the SASA Archives. She also co-authored the already mentioned exhibition dedicated to Academicians Jakovljević and Tucakov, which was mostly based on the materials of the SASA Archives material.

From mid-March to early September, due to the Covid-19 pandemic, the Archives was closed to external users. From September to mid-November, the reading room of the Archives was open, but the number of researchers was limited to three per day in accordance with the prior announcement and epidemiological safety measures. This limitation did not apply to the members of the Academy and associates of its Institutes and Committees, who could use the Archives services without prior notice. Although it was closed to researchers for most part of the year, the Archives recorded 278 visits by 29 domestic researchers for whom 3,989 xerox copies and 1,561 digital scans were made.

DEPARTMENT OF MATHEMATICS, PHYSICS AND EARTH SCIENCES

EARTH SCIENCES

COMMITTEE FOR PALEOFLORA AND PALEOFAUNA

(Academician Milan Sudar)

Certain planned studies were carried out: (a) new data about the Lower Cretaceous age of limestones of the Kučaj Zone were determined; (b) Upper Cretaceous radiolarians and foraminifers from Struganik were determined; (c) work on regional-geological, stratigraphic and paleontological problems of Paleogene and Neogene continued; (d) the study of paleofaunistic investigations of Tertiary and Quaternary small vertebrates continued; etc.

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Paunović G., Bogićević K., Urošević A., 2020: Intraspecific differentiation and sexual dimorphism in giant deer (*Megaloceros giganteus* Blumenbach, 1799; *Artiodactyla*, *Cervidae*) skulls found in Serbia. **Acta Zoologica**, 2020; 00: 1–11. doi: [10.1111/azo.1232522](https://doi.org/10.1111/azo.1232522)

Bragina L., Bragin N., Kopaevich L. F., Đerić N., Gerzina-Spajić N., 2020: Stratigraphy and Microfauna (Radiolarians and Foraminifera) of the Upper Cretaceous (Upper Santonian-Lower Campanian) Carbonate Deposits in the Area of Struganik Village, Western Serbia). **Stratigraphy and Geological Correlation**, 28 (1), 65–87. doi: <https://doi.org/10.1134/S086959382001003>

Rundić Lj., Marinović Đ., 2020: Depth geological relationships of the wider area of Belgrade – based on the wells and geophysical data. **Geološki anali Balkanskoga poluostrva**, 81 (2), 1–32, Beograd. doi: <https://doi.org/10.2298/GABP2010300:09M>

Jovanović M., Bogićević K., Agusti J., Blain H.-A., 2020: Paleoclimatic reconstruction of the late Pleistocene from Serbia based on rodent assemblages. **80th Annual Meeting of the Society of Vertebrate Paleontology**, Virtual 2020. October 12-16 2020, 142–143.

Jovanović M., Bisbal-Chinesta J. F., Đurić D., Bogićević K., Nenadić D., Agusti J., Blain H.-A., 2020: Late Pleistocene paleoenvironmental and paleoclimatic reconstructions in Northern Balkan Peninsula based on small vertebrates. **3rd Meeting of the ICAZ Microvertebrate Working Group**, Tarragona (Spain), 1st–2nd September 2020 (Abstracts Book, 21–22).

Blackwell B. A. B., Wolfe G., Skinner A. R., Plavšić S., Mihailović D., Dimitrijević V., Bogićević K., Đurić D., Dogandžić T., Singh I. K. C., D’Costa J. N., Yang D. J. Y., Blickstein J. I. B., 2020: ESR Dating at Mirosava Cave, Eastern Serbia. **GSA 2020 Connects Online**, 6-30. October 2020. Session Nr. 158, Paper 158-4, Geological Society of America, Abstracts with Programs, Vol. 52, No. 6. doi:10.1130/abs/2020AM-352481

Bogićević K., Đurić D., Dogandžić T., Singh I. K. C., D’Costa J. N., Yang D. J. Y., Blickstein J. I. B., 2020: ESR Dating at Mirosava Cave, Eastern Serbia. **GSA 2020 Connects Online**, 26-30. October 2020. Session Nr. 158, Paper 158-4, Geological Society of America, Abstracts with Programs, Vol. 52, No. 6. doi:10.1130/abs/2020AM-352481

COMMITTEE: GEODYNAMICS OF EARTH CRUST

(Corresponding Member Vladica Cvetković)

The realization of the planned activities of the Committee of Geodynamics of Earth Crust in 2020 was severely affected by the Covid-19 pandemic. The Committee members continued performing their individual research activities that were partly compatible with the program of the Committee. A part of the foreseen activities of the Committee was realized in 2020, such as: 1) a manuscript with the synthesis of geodynamic development of the Serbian territory was prepared and sent for publication as an introductory paper in the monograph “Landscapes and Landforms of Serbia” (Springer Verlag), 2) work on numerical modelling of geodynamic processes at the end of the Mesozoic continued, 3) preparatory work for a monograph paper on Cenozoic igneous formations in Serbia commenced, and 4) compilation of the existing data about different types of ore deposits in the Timok Complex was completed (PhD theses of Aleksandar Luković, Miloš Velojić, Dragan Bosić and Nemanja Pantelić). Within the Serbian Academy of Sciences and Arts Library Book Forum of 6 October, the Proceedings “Geohazard in Serbia in 21st century – the best rampart for natural disasters is knowledge” were promoted. In 2020, the Committee of Geodynamics of Earth Crust held only one virtual meeting in early November. At that meeting, the Committee mem-

bers approved the work report and the work plan for 2021 and decided that the available Committee funds should be spent for the reparation of the EDS detector in the SEM Laboratory of the University of Belgrade – Faculty of Mining and Geology.

Velojić M., Jelenković R., Cvetković V., 2020: Fluid Evolution of the Cukaru Peki Cu-Au Porphyry System (East Serbia) inferred from a fluid inclusion study. **Geologia Croatica**, 73, 3, 197–209. doi: 10.4154/gc.2020.14

Luković A., Vulić P., Zavašnik J., Cvetković V., Šarić K., Banješević M., Lazarov M., Pačevski A., 2020: Texture and composition of ferrian ilmenite from hornblende andesites of the Timok Magmatic Complex, Serbia. **Neues Jahrbuch für Mineralogie - Abhandlungen: Journal of Mineralogy and Geochemistry**. doi: 10.1127/njma/2020/0240

Project: **GEODYNAMICS OF TECTONOSTRATIGRAPHIC UNITS IN CENTRAL PART OF BALKAN PENINSULA**

(Academician Milan Sudar)

The following examinations took place: a) forming of the Upper Jurassic carbonate platform over obducted Dinaridic ophiolites, based on the microfacial analyses of their carbonate pebbles and ophiolitic detritus b) in the mélanges from Inner Dinarides of Serbia, the Jurassic Hallstatt Mélange of Zlatibor and Zlatar mts. was described, c) the results of geological investigations in the last 100 years based on the theory of M. Milanković about climate changes were analyzed.

Gawlick H.-J., Sudar M., Missoni S., Aubrecht A., Schlagintweit F., Jovanović D., Mikuš T, 2020: Formation of a Late Jurassic Carbonate Platform on top of the obducted Dinaridic ophiolites deduced from the analysis of carbonate pebbles and ophiolitic detritus in southwestern Serbia. **International Journal of Earth Sciences (Geol Rundsch)**, 109 (6), 2023–2048 (Published online: 08. June 2020. doi: <https://doi.org/10.1007/s00531-020-01886-w>

Bragin N., Đerić N., 2020: Age of the Jurassic hemipelagic sediments from the Ljubiš area (Zlatibor Mt., SW Serbia). **Geologia Croatica**, 73 (3), 143–151. doi: <https://doi.org/10.4154/gc.2020.11>

Radivojević D. N., 2020: A hundred years of Milutin Milanković's climate change theory - geological implications. **Geološki anali Balkanskoga poluostrva**, 81 (2), 87–98, Beograd. doi: <https://doi.org/10.2298/GABP201125011R>

Radivojević D. N., 2020: Naftna industrija i klimatske promene (The oil industry and climate changes). **Tehnika**, 75 (1), 31–37, Beograd. doi:10.5937/tehnika2001031R

Project: **STUDY OF THE OPHIOLITE BELTS OF THE VARDAR ZONE, THE DINARIDES AND THE CARPATHO-BALKANIDES**

(Corresponding Member Vladica Cvetković)

In 2020, the activities within the project “Study of the ophiolite belts of the Vardar zone, the Dinarides and the Carpatho Balkanides” were seriously affected by the Covid-19 pandemic. The collection of new data about the Sava–Vardar zone continued and this scientific problem is in focus of a project proposal submitted within the program “Ideas” of the Serbian Science Fund (leader Dejan Prelević). Besides, the proposal focused on the genesis of the newly discovered Čukaru Peki deposit in the Timok Magmatic Complex was submitted for the bilateral program between Serbia and China. Numerical modelling aimed at solving geodynamic problems of the reconstruction of the geological evolution of the Balkan Peninsula (PhD thesis of Nikola Stanković) also continued and the first results of this modelling were reported at the EGU conference in May 2020 (Stanković et al., 2020). Within other activities, a geochemical paper about the Rudnik volcanic complex was published (Zdravković et al., 2020).

Zdravković A., Cvetković V., Šarić K., Pačevski A., Rosić A., Erić S., 2020: Waste rocks and medieval slag as sources of environmental pollution in the area of the Pb-Zn Mine Rudnik (Serbia). **Journal of Geochemical Exploration**, 218, 106629. <https://doi.org/10.1016/j.gexplo.2020.106629>

Stanković N., Cvetkov V., Cvetković V., 2020: 2D Numerical Simulation of Intraoceanic Subduction during the Upper Jurassic Closure of the Vardar Tethys. **EGU General Assembly 2020**, Online, 4–8 May 2020, EGU2020-5919, <https://doi.org/10.5194/egusphere-egu2020-5919>, 2020.

Project: **GEOCHEMISTRY**

(Academician Vidojko Jović)

1. The geochemistry of the upper mantle and the igneous rocks of the Earth's crust

In 2020, Dr. Dejan Prelević continued to conduct research in the scientific field of geochemistry and petrology, with a particular focus on experimental petrology and geochemistry, especially in two directions: he conducted the study of different models of the origin of a metasomatized mantle; in the second part, he carried out a research into the thermodynamic melting con-

ditions and the composition of melts derived from such a mantle. Also, he started to perform a number of experiments where he simulates the recycling of different types of the continental crust within the mantle in the subduction zones, using the “piston-cylinder” method. He also continued to study the geochemistry of radioactive isotopes of Sr, Nd, Pb, Hf, Os, as well as stable isotopes of O and Li, and their application in geochronology and mineralogy. Dr. Dejan Prelević continued to apply the *in situ* analysis for chemical and isotopic composition of minerals, trace element analysis, stable isotopes, and U-Pb geochronology, using the method of inductively coupled plasma and mass spectrometer (solid and solution ICP-MS / MC/).

Förster M. W., Buhre S., Xu B., Prelević D., Mertz-Kraus R., Foley S. F., 2020: Two-Stage Origin of K-Enrichment in Ultrapotassic Magmatism Simulated by Melting of Experimentally Metasomatized Mantle. **Minerals**, 10, 41.

2. Geochemistry of Rock Alteration

Work continued on processing the previously obtained results relating to the behaviour of trace elements in the processes of surface decomposition of various rocks and minerals, as well as in the processes of hydrothermal alteration of rocks.

3. Mineralogy

The properties of glass-ceramics obtained by sintering the mixture of definite flotation tailings (DFT) and zeolite tuff (Igroš near Brus, Serbia) were studied. The aim of this research was to find a use for DFT from Zijin Bor Copper DOO, Serbia.

By heat treatment of the mixture T20 (20% zeolite tuff and 80% DFT) and the mixture T40 (40% zeolite tuff and 60% DFT), at a temperature of 1260°C for seven hours, glass-ceramic material with a dendritic structure was synthesized. The synthesized glass-ceramics consists of two phases: iron oxide crystals (maghemite, magnetite and hematite) which occur in the form of dendrites and glass, with the estimated phase ratio of 68:32 (T20) and 77:23 (T40). The relatively low degree of shrinkage of synthesized material (up to 7%) enables the reliable control of the designed shape, suggesting its use in the production of building materials.

The mineralogical properties of the clays used for the production of traditional ceramics at Zlakusa were also studied.

Milošević M., Logar M., Djordjević B., 2020: Mineralogical analysis of clay body used in the manufacture of traditional pottery from Zlakusa, Serbia. **Clay Minerals**, doi: 10.1180/clm.2020.20

Zdravković A., Cvetković V., Šarić K., Pačevski A., Rosić A., Erić S., 2020: Waste rocks and medieval slag as sources of environmental pollution in the area of the Pb-Zn Mine Rudnik (Serbia). **Journal of Geochemical Exploration**, 218, 106629. <https://doi.org/10.1016/j.gexplo.2020.106629>

Luković A., Vulić P., Zavašnik J., Cvetković V., Šarić K., Banješević M., Lazarov M., Pačevski A., 2020: Texture and composition of ferrian ilmenite from hornblende andesites of the Timok Magmatic Complex, Serbia. **Neues Jahrbuch für Mineralogie - Abhandlungen: Journal of Mineralogy and Geochemistry**. doi: 10.1127/njma/2020/0240

Project: **TRACE ELEMENTS IN THE SOLVING OF GEOLOGICAL PROBLEMS**

(Academician Vidojko Jović)

The work presents the results of examination of the cores of the exploration boreholes near Zaječar (Dacian basin). The Miocene succession is stratigraphically divided into three entities: Lower, Middle Miocene-Badenian and Middle Miocene – the total thickness of lacustrine Miocene is 110–260 m. On the basis of all collected data it was determined that there was a continental-lake deposition during the Lower Miocene. There are several dominant lithofacies, defined as basal clastites, colourful fine-grained clastites of muddy plains, lithofacies of gray fine-grained clastites, sediments of marsh facies, clastic sediments of lake facies and clastites of alluvial-lake facies.

The brackish sediments overlay lacustrine series. They are divided on the basis of fossil associations of molluscs, foraminifers and ostracods.

The “Zemun loess profile” was declared a protected area as a monument of nature – a valuable geoheritage site and a representative proof of paleogeographic occurrences during the Ice Age in this region.

The Zemun loess profile is a typical terrestrial loess. In the profile there are four loess horizons and four horizons of fossil soil, that is, buried soil formed during interglacial periods – warmer intervals of the ice age. On this basis, it is possible to continuously follow the development of loess formations during a period of almost a million years as well as the chronology of loess and paleosoil sequences.

Rundić L., Vasić N., Banjesevic M., Prelević D., Gajić V., Kostić B., Stefanović J., 2019: Facies analyses, biostratigraphy and radiometric dating of the Lower–Middle Miocene succession near Zaječar (Dacian basin, eastern Serbia). **Geološki anali Balkanskoga poluostrva**, 80 (2), 13–37. doi: 10.2298/GABP1902013R

Project: **RECONSTRUCTION OF PALEOCLIMATE IN THE TERRITORY OF SERBIA DURING THE QUATERNARY**

(Corresponding Member Slobodan B. Marković)

During 2020, the activities related to the project were carried out on a reduced scale due to objective limitations related to the problems caused by the pandemic. However, we conducted several independent field studies on the light profile of Dupljaja (samples for luminescent dating were sent to the Max Planck Institute in Mainz, Germany), and precipitation samples were collected for the period September–December 2020 at the meteorological station in Niš for isotopic analyzes to be performed by Chinese colleagues from Fuzhou Normal University. Due to the general working conditions in the past year, the research focus was placed on writing and publication of scientific papers.

1. Gavrilović B., Sümegi P., Ćirić M., Radaković M. G., Gavrilov M. B., Mladjen D., Marković S. B. 2020: The Middle and Late Pleniglacial (Weichselian) malacofauna of the Zemun loess–paleosol sequence, Serbia. **PalZ**, 94, 519–531.
2. Tecsá V., Mason J. A., Johnson W. C., Miao X., Constantin D., Radu S., Magdas D. A., Veres D., Marković S. B., Timar-Gabor A., 2020: Latest Pleistocene to Holocene loess in the central Great Plains: Optically stimulated luminescence dating and multi-proxy analysis of the Enders loess section (Nebraska, USA). **Quaternary Science Reviews**, 229, 106130.
3. Zeeden C., Obrecht I., Veres D., Kaboth-Bahr S., Hošek J., Marković S. B., Böskén J., Lehmkuhl F., Rolf C., Hambach U., 2020: Smoothed millennial-scale palaeoclimatic reference data as unconventional comparison targets: Application to European loess records. **Scientific reports**, 10, 1–13.
4. Avram A., Constantin D., Veres D., Kelemen S., Obrecht I., Hambach U., Marković S. B., Timar-Gabor A., 2020: Testing polymineral post-IR IRSL and quartz SAR-OSL protocols on Middle to Late Pleistocene loess at Batajnica, Serbia. **Boreas**, 49, 615–633.
5. Perić Z., Marković S. B., Sipos Gy., Gavrilov M. B., Thiel C., Zeeden C., Murray A.W., 2020: A post-IR IRSL chronology and dust mass accumulation rates of the Nosak loess-paleosol sequence in northeastern Serbia. **Boreas**, 49, 841–857.
6. Fenn K., Durcan J. A., Thomas D. S., Millar I. L., Marković S. B., 2020: Re-analysis of late Quaternary dust mass accumulation rates in Serbia using new luminescence chronology for loess–paleosol sequence at Surduk. **Boreas**, 49, 634–652.
7. Papić D., Bačević N. R., Valjarević A., Milentijević N., Gavrilov M. B., Živković M., Marković S. B., 2020: Assessment of air temperature trend in South and Southeast Bosnia and Herzegovina from 1961 to 2017. **IDOJARAS**, 124, 381–399.
8. Kalkan K. S., Forkapić S., Marković S. B., Bikit K., Gavrilov M. B., Tošić R., Mrđa D., Lakatoš R., 2020: The application of ¹³⁷Cs and ²¹⁰Pb ex methods in soil erosion research of Titel loess plateau, Vojvodina, Northern Serbia. **Open Geosciences**, 12, 11–24.

9. Tomić N., Marković S. B., Antić A., Tešić D., 2020: Exploring the potential for geotourism development in the Danube region of Serbia. **International Journal of Geoheritage and Parks**, 8, 123–139.
 10. Antić A., Tomić N., Marković S. B., 2020: Karst-Based Geotourism in Eastern Carpathian Serbia: Exploration and Evaluation of Natural Stone Bridges. **Geoconservation Research**, 3, 63–80.
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MATHEMATICS AND MECHANICS

Project: SPECTRAL RECOGNITION OF GRAPHS

(Academician Dragoš Cvetković)

The book [1] contains an autobiographic chapter by D. Cvetković.

1. The paper [1] is devoted to late Slobodan Simić, a participant in earlier projects.

2. The characterization of certain integral graphs, published in [Graphs Comb. 19 (2003), 527-532], contains mistakes which are here corrected.

3. We study how the cospectrality graph of the union of two Smith graphs can be composed starting from cospectrality graphs of starting graphs.

4. We define the corona of graphs as a unary graph operation. We study some properties of corona graphs in general and, in particular, of the icosahedron corona.

5. Bee Colony Optimization (BCO) is a population-based metaheuristic method that belongs to the class of Swarm Intelligence algorithms. We review several recent papers, considering its application to various decision-making problems, with an emphasis on the author's results.

6. We consider the symmetric traveling salesman problem (TSP) with instances represented by complete graphs G with distances between cities as edge weights. Extensive computational experiments with instances on 50–100 vertices with the random distribution of integer edge weights show that there is a correlation between the sequences of selected invariants and the sequence of execution times of the well-known TSP Solver Concorde.

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1. Cvetković D., Cvetković Lj., Cvetković S., Vukajlović M., 2020: **Od licidera do akademika**, Edicija Zavičajni krug, Knjiga 29, Biblioteka “Gligorije Vožarović”, Sremska Mitrovica. (In Serbian)
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Articles:

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1. Cvetković D., Rowlinson P., 2020: Slobodan Simić: An appreciation. **Discussiones Mathematicae Graph Theory**, 40, 367–378.

2. Pokorny M., Stevanović D., 2020: Comments on „On Integral Graphs Which Belong to the Class ...“ [Graphs Comb. 19, 527–532 (2003)]. **Graphs and Combinatorics**, 1263–1268.
 3. Cvetković D., Jerotijević M., 2020: Compositions of cospectrality graphs of Smith graphs. **Kragujevac Journal of Mathematics**, 47, No. 2, 271–279.
 4. Cvetković D., 2020: Coronaviruses and corona of graphs. **SYM-OP-IS 2020**, 105–108.
 5. Davidović T., 2020: Bee Colony Optimization for Decision Making Problems. **SYM-OP-IS 2020**, 138–143.
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Project: **EQUATIONS WITH SINGULARITIES THROUGH METHODS OF FUNCTIONAL ANALYSIS**

(Academician Stevan Pilipović)

The analysis of a class of pseudo-differential operators of infinite order as well as the time-frequency analysis were the basic topics of study on the project. The analysis of the wavefront in the quasi-analytical case was also carried out.

The development of functional analysis methods related to equations with singularities is a global program of our work on the project.

Pilipovic S., Teofanov N., Tomic F., 2020: A Paley–Wiener theorem in extended Gevrey regularity. **Journal of Pseudo-Differential Operators and Applications**, 11, 593–612.

Pilipovic S., Prangoski B., 2020: Equivalence of Ellipticity and the Fredholm Property in the Weyl–Hörmander Calculus. **Journal of the Institute of Mathematics of Jussieu**, 1–27. doi:10.1017/S1474748020000584

Project: **INTERPOLATION AND QUADRATURE PROCESSES BASED ON THE THEORY OF ORTHOGONALITY**

(Academician Gradimir V. Milovanović)

The work on the project was divided into two parts (subprojects) and represents a continuation of the previous research.

Subproject I: DEVELOPMENT OF NEW CONCEPTS OF ORTHOGONALITY AND APPLICATIONS ([1]–[8]). Orthogonality on a semicircle and radial rays in the complex plane was introduced, as well as applications in the integration of quasi-singular integrals and efficient calculation of integrals with high oscillatory integrands, with algebraic and logarithmic type singularities. Orthogonal polynomials and Gaussian-type quadrature formulas for Riemann-Liouville-type fractional integrals were constructed, as well as some results for hypergeometric functions.

Subproject II: EXTREMAL PROBLEMS AND MARKOV-BERNSTEIN TYPE INEQUALITIES FOR ALGEBRAIC POLYNOMIALS ([9]-[11]). The work on the monograph under the same title (with R. B. Gardner and N. K. Govil) is coming to an end, and some new results in this field have been obtained.

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1. Milovanović G. V., Öztürk G., Aktaş R., 2020: Properties of some of two-variable orthogonal polynomials. **Bulletin of the Malaysian Mathematical Sciences Society**, 43, 1403–1431.
 2. Kılıç Kurtoğlu D., Hasçelik A. I., Milovanović G. V., 2020: A method for efficient computation of integrals with oscillatory and singular integrand. **Numerical Algorithms**, 85, 1155–1173.
 3. Milovanović G. V., 2020: Some orthogonal polynomials on the finite interval and Gaussian quadrature rules for fractional Riemann-Liouville integrals. **Mathematical Methods in the Applied Sciences**, 44 (2021), no. 1, 493–516. doi: 10.1002/mma.6752
 4. Milovanović G. V., Simsek Y., 2020: Dedekind and Hardy type sums and trigonometric sums induced by quadrature formulas. In: **Trigonometric Sums and Their Applications** (A. M. Raigorodskii, M. Th. Rassias, eds.), 183–228, Springer, Cham.
 5. Kim Y. S., Milovanović G. V., Wang X., Rathie A. K., 2020: Generalizations of a formula due to Kummer with applications. **Filomat**, 34, 2, 671–682.
 6. Masjed-Jamei M., Milovanović G. V., 2020: Generalized hypergeometric identities with extra parameters. **Filomat**, 34, 10, 3483–3494.
 7. Alshanti W. G., Milovanović G. V., 2020: Double-sided inequalities of Ostrowski's type and some applications. **Journal of Computational Analysis and Applications**, 28, 724–736.
 8. Milovanović G. V., Mir A., 2020: On the Erdős-Lax inequality concerning polynomials. **Mathematical Inequalities and Applications**, 23, 1499–1508.
 9. Milovanović G. V., Mir A., 2020: Generalizations of Zygmund-type integral inequalities for the polar derivative of a complex polynomial. **Journal of Inequalities and Applications**, Paper No. 136, 12 pp.
 10. Milovanović G. V., Mir A., Ahmad A., 2020: Certain estimates of Turán's-type for the maximum modulus of the polar derivative of a polynomial. **Publications de l'Institut Mathématique (Beograd) (N.S.)**, 108 (122), 119–128.
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Project: **SPECIAL PROBLEMS OF COMPLEX ANALYSIS AND APPLICATIONS**

(Academician Miodrag Mateljević)

We have considered some questions from the geometric theory of functions; Dirichlet problem for harmonic mappings, versions of Kellogg's theorem for harmonic quasi-conformal mappings and hyperbolic metrics as well as versions of Schwartz's lemma for harmonic mappings.

Mateljević M., 2020: Schwarz lemma and distortion for harmonic functions via length and area. **Potential Analysis**, volume 53, 1165–1190.

Mateljević M., Khalfallah A., 2020: On some Schwarz type inequalities. **Journal of Inequalities and Applications**, 164.

Mateljević M., Svetlik M., 2020: Hyperbolic metric on the strip and the Schwarz lemma for HQR mappings, available online at <http://pefmath.etf.rs>, **Applicable Analysis and Discrete Mathematics**, 14, 150–168. <https://doi.org/10.2298/AADM200104001M>

Božin V., Mateljević M., 2020: Quasiconformal and HQR mappings between Lyapunov Jordan domains. **Ann. Sc. Norm. Super. Pisa**, Cl. Sci. (5). doi Number: 10.2422/2036-2145.201708_013, 23 p.

Project: **FIXED POINTS FOR MAPS ON DIFFERENT SPACES**

(Corresponding Member Vladimir Rakočević)

Within this project, we will work on the generalization of recent results on fixed point theory related with contractive mappings on different metric spaces. We will present numerous examples, among which some give the illustrations of known results. We plan to work on some problems from the operator theory and matrix transformations on BK-spaces.

Mujahid A., Rakočević V. R., Azhar H., 2020: Best Proximity Point of Zamfirescu Contractions of Perov Type on Regular Cone Metric Spaces. **Fixed Point Theory**, vol. 21, No. 1, 3–17.

Orhan T., Rakočević V. R., Malkowsky E., 2020: On the Domain of the Four-Dimensional Sequential Band Matrix in Some Double Sequence Spaces. **Mathematics**, VL - 8 DO - 10.3390/math8050789.

Karapinar E., Öztürk A., Rakočević V. R., 2020: A fixed point theorem for a system of Pachpatte operator equations. **Aequationes Mathematicae**, Springer Nature Switzerland AG 2020. <https://doi.org/10.1007/s00010-020-00724-3>

Tiwari R., Khan M. S., Rani S., Rakočević V. R., 2020: On $(\psi;\varphi)^2$ - contractive maps. **Carpathian Journal of Mathematics**, 36, No. 2, 303–312.

Bisht R. K., Rakočević V. R., 2020: Discontinuity at fixed point and metric completeness. **Applied General Topology**, 2020.

Karapinar E., Khojasteh F., Mitrović Z. D., Rakočević V. R., 2020: On surroundings quasi contractions on non-triangular metric spaces. **Open Mathematics**, 2020.

Abbas M., Rakočević V. R., Noor Z., 2020: Results of Perov type contractive mappings in D^* - cone metric spaces. **Journal of Analysis**, 2020.

Bisht R. K., Rakočević V. R., Kumar Singh N. M., Fisher F. B., 2020: On discontinuity at fixed point via power quasi contraction 2020: point via power quasi contraction. **Publ. Inst. Math. dedicated to H. Srivastavi**. 2020.

Karapinar E., Fulga A., Rakočević V. R., 2020: A Discussion on a Pata Type Contraction via Iterate at a Point. **Filomat**, 34, 4, 1061–1066.

Malkowsky E., Rakočević V. R., 2020: Summability Methods and Applications. **Mathematical Institute of the Serbian Academy of Sciences and Arts (SASA)**, Belgrade.

PHYSICS AND METEOROLOGY

Project: **NUMERICAL WEATHER AND CLIMATE SIMULATION**

(Academician Fedor Mesinger)

During the year, the activities included the preparation of lectures for two international meetings and work on the final content of the manuscript that was prepared, upon invitation, for the Journal of the Meteorological Society of Japan. At the first of the two lectures (Mesinger, Veljović, Chou, et al.) it was pointed out, on the basis of three results, that a limited-area model can improve the accuracy of large-scale forecasting. Therefore, the provision of boundary conditions by the relaxation method and large-scale nudging are unjustified. The review work on the methods of considering topography in numerical models presents the results of the ensemble forecasts of the regional Eta model, based on the boundary conditions of the 32-day ensemble members of the European Centre for Medium-Range Weather Forecasts (EC). It was shown that in the circumstances of a high-altitude valley stretching across the Rocky Mountains, after adjustment to the initial conditions, the Eta members forecast the jet stream's location more accurately for the first ten or even more days than the EC members who provided the boundary conditions. The experiment with the Eta, modified to use the usual sigma coordinate, shows that this advantage was achieved to a significant extent but not yet completely by using the Eta vertical coordinate. Therefore, the model must also contain other components contributing to the success.

Mesinger F., Veljovic K., 2020: Topography in weather and climate models: Lessons from cut-cell Eta vs. European Centre for Medium-Range Weather Forecasts experiments. **Journal of the Meteorological Society of Japan**, 98 (5), 881–900. <https://doi.org/10.2151/jmsj.2020-050>

Mesinger F., Veljovic K., Chou S. C., Gomes J. L., Lyra A. A., Fennessy M. J., Alshuler E. L., 2020: Lateral boundary relaxation and large scale nudging in RCM runs. **Annual Assembly of the European Geosciences Union**, Vienna, Austria, May 4-8, 2020. https://presentations.copernicus.org/EGU2020/EGU2020-20830_presentation.pdf

Mesinger F., Veljović K., Jović D., Chou, S. C. 2020: Numerical modeling, from weather to climate: Progress achieved, and some of the reasons promising fur-

ther progress. Keynote lecture, workshop „**One Hundred Years of Milanković's Theory of Climate Change**“, Belgrade, Serbia, November 18, 2020.

Project: DYNAMICS OF THE SOLAR SYSTEM BODIES

(Academician Zoran Knežević)

Topic: Dynamical and physical properties of small solar system bodies

(Academician Zoran Knežević)

Determined are positions of secular resonances in the six dynamically distinct zones of the asteroid main belt. A model for the analysis of accuracy of the method to determine asteroid family ages based on the Yarkovsky effect is developed. Completed are investigations pertaining to the dynamics of the Karma asteroid family. Shape of the family in the space of proper orbital elements is successfully reproduced and evolutionary mechanisms identified. It is estimated that around 10 asteroids, originated in Karma family and larger than 1 km in diameter, currently reside in the near-Earth region. Completed is also analysis of the contribution of Themis family asteroids to the population of Jupiter family comets. It has been found that dynamical evolution in principle can produce cometary orbits for Themis family members, but that this family does not represent a substantial source of these comets. Finally, completed is investigation of the possibility that Themis family members in the polar regions can retain some water during the transport in the vicinity of the Earth.

Topic: Observations of quasars and of double and multiple stars

(Dr. Goran Damljanović)

A total of 70 double and multiple stars, as well as several quasars for Gaia astrometry were observed using the 2m Rozhen telescope (Bulgaria). In addition, 11 Gaia Alerts objects and around 10 WEBT (Whole Earth Blazar Telescope) ones were observed by means of the 60cm and 1.4m telescopes of the Astronomical Station Vidojevica (Serbia).

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Project: **SHAPES AND SHIFTS OF SPECTRAL LINES IN GAS PLASMAS AND ELECTRIC GAS DISCHARGES**

(Academician Nikola Konjević)

The research was carried out in two directions: one is measurement of temperatures in the cathode sheath (CS) region of abnormal glow discharge operated in hydrogen and in hydrogen with 5 % of The The research was carried out in two directions: one is the measurement of temperatures in the cathode sheath (CS) region of abnormal glow discharge operated in hydrogen and in hydrogen with 5% of argon, while the second direction is towards the investigation of complex UV shapes of Ne II lines in the CS region of abnormal glow discharge. The research is described in two publications.

In the first paper, we present results of the rotational, vibrational, and gas temperature distribution study in the cathode-sheath region of an abnormal glow discharge in hydrogen and hydrogen-argon mixture. For this purpose, we used the Q-branch of the Fulcher- α diagonal bands. For the electric field measurement Stark polarization spectroscopy of hydrogen Balmer alpha line was employed.

The distributions of rotational temperature show that all three temperatures (gas, rotational and vibrational) vary along the cathode sheath region of discharge and that all four bands give consistent values for the rotational temperature. The measurements performed with high spectral resolution provide further insight into the understanding or modelling the DC glow discharge.

In the second paper we report the results of an experimental and theoretical study of complex UV line shapes of Ne II 369.421 nm, Ne II 371.308 nm and Ne II 372.711 nm lines in the cathode sheath (CS) region of an abnormal glow discharge in pure neon. The experimental profiles were studied by means of the optical emission spectroscopy in conjunction with an iterative CS kinetic model. It is shown that our theoretical model describes the experimental line shapes and that, with results of the measured Stark shifts of atomic neon lines, it can be used for the determination of the most important CS parameters

(e.g. the thickness of the CS region, distribution of electric field, and the gas temperature). We draw attention to the possibility of determining the electric field strength in CS from the width of the pedestal of the complex line profiles.

Vasiljević M. M., Majstorović G. Lj., Spasojević Dj., Konjević N., 2020: Q-branch of Fulcher- α diagonal bands for determination of the axial temperature distribution in the cathode sheath region of hydrogen and hydrogen-argon abnormal glow discharge. **Journal Quantitative Spectroscopy and Radiative Transfer**, 254, 107195.

Spasojević Dj., Ivanović N. V., Nedić N. V., Šišović N. M., Konjević N., 2020: Complex UV Ne II line shapes in the cathode sheath of an abnormal glow discharge. **Plasma Sources Science and Technology**, 29, 085008.

Djurović S., Blagojević B., Konjević N., 2020: Comparison of experimental and semi classical results for ArII Stark broadening parameters for $(^3P)4s\ ^2P - (^3P)4p\ ^2D^0$ multiplet, Serbia, Belgrade, 2020, Eds. L. Č. Popović, D. Borka, D. Ilić and V. Srećković, **Publications Astronomical Observatory**, Belgrade, No. 99, 161–164.

Nedić N. V., Ivanović. N. V., Spasojević. Dj., Konjević N., 2020: Measurement of electric field distribution along cathode sheath of an abnormal glow discharge using Ne I 556.277 nm line, No. 99 (2020). **ibid.** 181–184.

Project: N-REPRESENTABILITY PROBLEM

(Academician Milan Damnjanović)

The research on the symmetry of low-dimensional crystals continued, including the analysis of topological phases of quasi-one-dimensional systems and their contraction graphs. Preliminary (still not published) general results for layers are used to show that the topologically driven transistor (based on transition-metal-dichalcogenides) proposed in the literature cannot be functional as the proposed configuration has only topologically trivial bands. For layered structures the anomalies in electron-phonon interaction are systematically characterized, as well as all linear (Dirac's) dispersions in the high symmetry points of the Brillouin zone. Also, the codes (symbolic programming) for preparing datasets of all possible elementary band structures of layers and recognition of the topologically nontrivial ones are prepared.

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1. Damljanović M., Lazić N., Solajić A., Pešić J., 2020: Peculiar symmetry-protected electronic dispersions in two-dimensional materials. **Journal of Physics: Condensed Matter**, 32, 485501.
 2. Milivojević M., Dmitrović S., Damljanović M., Vuković T., 2020: Spin-Orbit Effects in MoS₂ Nanotubes. **Journal of Physical Chemistry C**, 124, 11141–11149.

3. Milošević I., Dmitrović S., Vuković T., Dimić A., Damljanović M., 2020: Elementary band representations for (double)-line groups. **Journal of Physics A: Mathematical and Theoretical**, 55, 455204.
 4. Milošević I., Popović Z. P., Nikolić B., Damljanović M., 2020: Electronic Band Topology of Monoclinic MoS₂ Monolayer: Study Based on Elementary Band Representations for Layer Groups. **Physica status solidi (RRL) - Rapid Research Letters**, 202000351.
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Project: **PHYSICS OF SUPERCONDUCTIVITY**

(Academician Zoran Radović)

1. Research of high-temperature superconductivity in cuprates in collaboration with the group of I. Božović (Brookhaven National Laboratory, USA).

2. The theoretical investigation of spin triplet superconducting correlations in Josephson junctions with inhomogeneous ferromagnet: phase dependence of Josephson current and mutual relation of resonantly amplified first harmonic and dominant second harmonic. In collaboration with M. Vanević from the Faculty of Physics University of Belgrade and A. Buzdin, Université de Bordeaux, France.

Project: **BIOPHYSICS OF PROTEINS IN THE LIVING CELLS**

(Academician Miljko Satarić)

Calcium ions play the crucial role in intracellular signaling. We considered how the Dynein motor proteins, activated by calcium ions contained within fast “ionic clouds” drifting along microtubules, regulate ciliary and flagellar beat. Our original model is largely aligned with newest experimental evidences.

Satarić M. V., Nemeš T., Satarić B., Sekulić D., Zdravković S., 2020: Calcium ions tune the beats of cilia and flagella. **BioSystems**, 196, 104172 (2020).

Satarić M. V., Zdravković S., Nemeš T., Satarić B., 2020: Calcium signaling modulates the dynamics of cilia and flagella. **European Biophysics Journal**, 49 (7), 619–631.

Project: **NON-LINEAR OPTICS IN ATOMIC PHYSICS AND LASER MICROSCOPY**

(Corresponding Member Branislav Jelenković)

1. Measurements were done of amplitude squeezing of a pair of correlated photons generated in nonlinear Four Wave Mixing (FWM) in Potassium thermal vapor. Preliminary results show high level of squeezing, ~ 5 dB below standard quantum noise limit at the wide spectral bandwidth of about 1 MHz. 2. Numerical calculations of density matrix elements using optical Bloch equations, and Maxwell wave propagation equations, were used to compute shapes of probe and conjugate pulses at the exit of 4 cm long potassium vapor, when 80 ns probe pulse enters the vapor. Doppler averaging of density matrix elements was done using different schemes and results were compared with our experimental results. 3. After the upgrade of the set-up for direct laser writing, we are now able to fabricate, in photosensitive gals, micron size optical elements, like micro-lenses, wave-guides and micro-fluidic channels, necessary elements of the biological lab-on-chip.

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1. Stankovic N. G., Nikolic M. G., Jelenkovic B., Daneu M. N., Maletaskic J. R., Prekajski-Djordjevic M. D., Matovic B. Z., 2020: Luminescence properties of Eu³⁺ activated Y₂MoO₆ powders calcined at different temperatures. **Processing and Application of Ceramics**, 14, 71.
 2. Sun P., Zhang W., Zada I., Zhang Y., Jiajun Gu, Liu Q., Su H., Pantelic D. V., Jelenkovic B. M., Zhang D., 2020: 3D-Structured Carbonized Sunflower Heads for Improved Energy Efficiency in Solar Steam Generation. **ACS Applied Materials & Interfaces**, 12, 2171.
 3. Cantu S. H., Venkatramani A. V., Xu W., Zhou L., Jelenković B., Lukin M. D., Vuletić V., 2020: Repulsive photons in a quantum nonlinear medium, **Nature Physics**, 16, 921.
 4. Zada I., Zhang W., Sun P., Imtiaz M., Iqbal N., Ghani U., Naz R., Zhang Y., Li Y., Gua J., Liua Q., Pantelic D., B. Jelenkovic, Zhang Di, 2020: Superior photothermal black TiO₂ with random size distribution as flexible film for efficient solar steam generation. **Applied Materials Today**, 20, 100669 (2020).
 5. Dimitrijevic J., Arsenovic D., Jelenkovic B. M., 2020: Conservation laws for optical Bloch equations for the Λ scheme. **Journal of Physics A: Mathematical and Theoretical**, 53, 445201.
 6. Sun P., Wang W., Zhang W., Zhang S, Gu J., Yang L., Pantelic D., Jelenkovic B., Zhang D., 2020: 3D Interconnected Gyroid Au-CuS Materials for Efficient Solar Steam Generation. **ACS Applied Materials & Interfaces**, 12, 34837.
 7. Kovačević A. G., Petrović S. M., Salatić B., Lekić M., Vasić B., Gajić R., Pantelić D., Jelenković B. M., 2020: Inducing LIPSS on multilayer thin metal films by femtosecond laser beam of different orientations. **Optical and Quantum Electronics**, 52, 301.
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Project: **SINGLE-ATOM CATALYSTS AND MAGNETS BASED ON METALS AT 2D MATERIALS (1ATOM-2D)**

(Corresponding Member Željko Šljivančanin)

Using the density functional theory, we studied catalytic properties of single-atom catalysts (SACs) based on transition-metal atoms adsorbed at mono-atomic vacancies of graphene and hexagonal boron-nitride, and we identified several promising candidates for hydrogen evolution reaction, with the performance comparable to the one of platinum [1]. We also studied electronic transport through organic molecules adsorbed at graphene nanopores [2, 3].

1. Sredojević D. M., Belić M. R., Šljivančanin Ž., 2020: Hydrogen evolution reaction over single-atom catalysts based on transition metal atoms at defected graphene and h-BN. **Journal of Physical Chemistry C**, 124, 16860.2.
2. Djurišić I., Dražić M. S., Tomović A. Ž., Spasenović M., Šljivančanin Ž., Jovanović V. P., Zikić R., 2020: DNA Sequencing with Single-Stranded DNA Rectification in a Nanogap Gated by N-Terminated Carbon Nanotube Electrodes. **ACS Applied Nano Materials**, 3, 3034.
3. Djurišić I., Dražić M. S., Tomović A. Ž., Spasenović M., Šljivančanin Ž., Jovanović V. P., Zikić R., 2020: Field Effect and Local Gating in Nitrogen-Terminated Nanopores (NtNP) and Nanogaps (NtNG) in Graphene. **ChemPhysChem**, doi:10.1002/cphc.202000771

COMMITTEE FOR KARST OF AND SPELEOLOGY

(Corresponding Member Slobodan B. Marković)

During 2020, the activities of the Committee for Karst and Speleology were carried out on a reduced scale due to objective limitations related to the problems caused by the pandemic. Preparations for the publication of the 11th Volume of the Committee for Karst and Speleology have been finalized. An “online” meeting of the Committee members was held in November, when a decision was made to organize an international scientific conference to mark the International Year of Karst and Cave Studies in September next year.

Niedziałkowska M., Doan K., Górny M., ..., Dimitrijević V., ..., Stanković A., 2020. Winter temperature and forest cover have shaped red deer distribution in Europe and the Ural Mountains since the Late Pleistocene. **Journal of Biogeography**, 23, 1–13.

Antić A., Vujko A., Tomić N., 2020: Examining and Forecasting Tourist Arrivals and Speleotourism Development in Resava Cave (Eastern Serbia). **European Journal of Tourism, Hospitality and Recreation**, 10, 146–153.

Tomić N., Marković S. B., Antić A., Tešić D., 2020: Exploring the potential for geotourism development in the Danube region of Serbia. **International Journal of Geoheritage and Parks**, 8, 123–139.

Antić A., Tomić N., Marković S., 2020: Karst-Based Geotourism in Eastern Carpathian Serbia: Exploration and Evaluation of Natural Stone Bridges. **Geoconservation Research**, 3, 63–80.

Antić A., Tomić N., Đorđević T., Radulović M., Đević I., 2020: Speleological objects becoming show caves: evidence from the Valjevo karst area in Western Serbia. **Geoheritage**, 12, 1–12.

Jovanović M., Bisbal-Chinesta J. F., Đurić D., Bogičević K., Nenadić D., Agusti J., Blain H.-A., 2020: Pleistocene herpetofaunal studies in Serbia (Balkan Peninsula, SE Europe): State of the art and perspectives. **Quaternary Science Reviews**, 233, 106235.

Jovanović M., Bogičević K., Agusti J., Blain H.-A., 2020: Paleoclimatic reconstruction of the Late Pleistocene from Serbia based on rodent assemblages. **The Society of Vertebrate Paleontology 80th Annual Meeting**. Virtual 2020. October 12-16 2020, 142–143.

Jovanović M., Bisbal-Chinesta J. F., Đurić D., Bogičević K., Nenadić D., Agusti J., Blain, H.-A., 2020: Late Pleistocene paleoenvironmental and paleoclimatic reconstructions in Northern Balkan Peninsula based on small vertebrates. **Abstracts Book of 3rd Meeting of the ICAZ Microvertebrate Working Group** Tarragona (Spain) 1st–2nd September 2020, 21–22.

Blackwell B. A. B., Wolfe G., Skinner A. R., Plavšić S., Mihailović D., Dimitrijević V., Bogičević K., Đurić D., Dogandžić T., Singh I. K. C., D'Costa J. N., Yang D. J. Y., Blickstein J. I. B., 2020: ESR Dating at Mirošava Cave, Eastern Serbia. **GSA 2020 Connects Online** 26-30. October 2020. Session Nr. 158, Paper 158-4. **Geological Society of America Abstracts with Programs**. Vol 52, No.6. doi: 10.1130/abs/2020AM-352481.

Telbisz T., Brankov J., Čalić J., 2020: Topographic and lithologic controls behind mountain depopulation in Zlatibor District (Western Serbia). **Journal of Mountain Science**, 17, 271–288.

Čalić J., Mladenović A., Petrović A. S., Gajović V., 2020: Stripe Karst Tectonic Settings – Examples from Eastern Serbia. In: P. Kambesis, A. Singer & L. A. Bledsoe (Eds), **Proceedings for Conservation of Fragile Karst Resources – A Workshop on Sustainability and Community in support of UNESCO science programs**; August 18-20, 2020 (p. 12).

Telbisz T., Čalić J., Kovačević-Majkić J., Brankov J., Micić J., Mari L., 2020: Karstic National Parks' Roles and Potentials – Views and Opinions from Tara National Park, Serbia. In: P. Kambesis, A. Singer & L. A. Bledsoe (Eds), **Proceedings for Conservation of Fragile Karst Resources – A Workshop on Sustainability and Community in support of UNESCO science programs**; August 18-20, 2020 (p. 20).

**ACADEMIC COMMITTEE FOR THE EARTH'S CLIMATE
SYSTEM DYNAMICS AND THE WORK OF MILUTIN
MILANKOVIĆ**

(Academician Fedor Mesinger)

Several members of the Committee promoted Milanković's work at various events. So, Academicians Mesinger and Knežević participated in an international online meeting marking the 100th anniversary of Milanković's groundbreaking work on the astronomical impacts on climate change, which was organized by the Milutin Milanković Society, 17-18 November. Academician Mesinger gave a keynote lecture. On 11 December, both of them and Professor Petrović gave short presentations at the 13th Milanković Cycles. The event was organized by the Milutin Milanković Cultural and Scientific Centre (CSC) in Dalj, headed by Djordje Nešić. On this occasion, Fedor Mesinger was awarded the Milanković Cycles Gold Medal for 2020 by the Centre "For his contribution to the affirmation of Milanković's opus and the work of the Milutin Milanković Cultural and Scientific Centre". At the Committee meeting on 13 December, it was reported about the activities during the year and the activities in 2021 were proposed, including a proposal for holding a meeting dedicated to climate change, as the second meeting titled "Earth's Climate Change: Science and Impacts" (Promena klime Zemlje: nauka i uticaji), after the meeting of the same name in 2017.

**ACADEMIC COMMITTEE DEFICIENCY OF SELENIUM
AND MAGNESIUM IN SERBIA**

(Academician Vidojko Jović)

In 2020, the work continued on the systematization and processing of all existing publications on selenium and magnesium in minerals, rocks, soils, waters, plants, field crops and human population in Serbia. In addition, the data from the relevant world literature, especially that of the neighbouring countries, were collected and published for comparison purposes. Since the presence of selenium in different geological and biological materials in Serbia has been investigated for more than 30 years, it is necessary to make a synthesis of all results. The work involves the study of more than a hundred publications published in the country and abroad. Finally, it is planned to publish a monograph on selenium in Serbia. The situation concerning the presence of magnesium in the environment is similar. However, due to an extremely great number of the relevant publications, it will take more time for their processing.

Special attention will be devoted to the effects of the foliar addition of selenium on field crops quality.

ACADEMIC COMMITTEE FOR COOPERATION WITH OUR SCIENTISTS AND ARTISTS IN THE WORLD

(Academician Zoran Radović)

During 2020, the members of the Committee continued to work on forming a database of our scientists and artists around the world, each for their field. So far, data have been completed for the fields: Physics and Astronomy (Zoran Radović) and Medicine (Ljubisav Rakić). Contact with societies: the Organization of Serbian Students Abroad (President Aleksandar Jakovljević), and Prof. Dr. Slavka Drašković from the American-Serbian Foundation Studenica.

The database is planned to be completed in 2021 and our scientists and artists worldwide will be invited to cooperate. The idea is to organize a committee of the most prominent scientists and artists who wish to take part in programs of relevance for our country.

ACADEMIC COMMITTEE FOR HIGHER EDUCATION

(Corresponding Member Vladica Cvetković)

The SASA Committee for Higher Education held only three meetings in 2020. The first was held on 21 February, just before the outbreak of the Covid-19 pandemic, and it was discussed about the idea of the SASA General Secretary, Academician Marko Andjelković, to launch the initiative about ranking independent higher education institutions in Serbia. It was agreed to realize this idea and use the results of the PESHES research project for this purpose. It was also stated that the members of the Committee would participate in the meeting dedicated to the state and perspectives of education, within the big SASA cycle titled “Strategic Development Directions of Serbia in the 21st Century” (Strateški pravci razvoja Srbije u 21. veku). It was planned to hold a meeting dedicated to education on 11 and 12 June 2020, but it had to be postponed due to the pandemic. At the same meeting, the proposal was accepted for the Committee to start organizing regular meetings (round tables, workshops) four times a year at the SASA Club, where various topics of importance for the development of education in Serbia would be discussed. This activity also had to be suspended due to the pandemic.

The second meeting of the Committee was held as a combination of physical and online presence on 29 October 2020. It was discussed about the letter of the President of SASA relating to the signing of the Protocol on Cooperation between the SASA and the University in Priština, temporarily located in Kosovska Mitrovica. All members of the SASA Committee expressed their readiness to cooperate and stated that the representatives of the University of Priština should submit their proposals with respect to a specified form of cooperation. The members of the Committee also discussed the problems in their work caused by the Covid-19 pandemic and decided to carry on with their activities in accordance with the epidemiological safety measures.

The third meeting was held via Webex platform on 14 December. On this occasion, it was decided to send a proposal to the SASA Executive Board to elect the following scientists as the new members of the Committee: Professor Dr. Živoslav Tešić, retired full professor at the University of Belgrade Faculty of Chemistry, Professor Dr. Aleksandar Baucal, full professor at the University of Belgrade Faculty of Philosophy, and Professor Dr. Branko Urošević, professor at the University of Belgrade Faculty of Economics. Other current issues relating to higher education in Serbia were also discussed.

ACADEMIC COMMITTEE FOR SCIENCE

(Academician Zoran Knežević)

During 2020, due to the circumstances resulting from the COVID-19 epidemic, the SASA Academic Committee for Science was not able to implement the majority of its planned activities, and for the same reason, it did not convene any plenary sessions. Nevertheless, there were some ongoing activities, which should be mentioned:

– Appointment of Academician Miodrag Čolić as a SASA representative to “The Third Annual Meeting of European Members of the International Scientific Council – ISC”, which was to be held on 10 and 11 September in Budva;

– Informing the Committee members on the memos issued by the president of the Academic Committee for Energy, SASA corresponding member Professor Slobodan Vukosavić: the memo containing the Proposal for the programme framework for financing N / I projects covering the issues in Serbian energy sector and the provisional agenda of the scientific conference: “The role of nuclear energy in energy transition”, which was scheduled to take place on Monday, May 11, 2020, as well as on a letter sent to the Science Fund discussing the need to increase the engagement of available capacities

in research, development, planning and solving problems in Serbian energy sector;

– President of the Academic Committee for Science, Academician Zoran Knežević's response to the letter of Director of the SASA Geographical Institute "Jovan Cvijić", Dr. Milan Radovanović, wherein he asked the Committee to make a decision whether the project proposal that the Institute intended to submit to the Science Fund within the call titled "Ideas" was in compliance with ethical principles. It was responded that the Committee for Science was not able to meet the request of the Institute, because it did not have the prerogative of ethics committees, and therefore it could not pass any opinion in reference to the assessment of any individual act or act as arbiter in the required sense.

– Informing the Committee members on the letter of the International Scientific Council (ISC) in reference to the submission of proposed priorities for science that would be presented to science funders in 2021;

– Presenting the Report on the 2019 State of Science, which was prepared by the National Council for Scientific and Technological Development, to the Committee members. It should be noted that in 2020, Academician Zoran Popović chaired the National Council for Science, whose members were also academicians Milena Stevanović, Jasmina Grković Mejdžor and Bogdan Šolaja, and that Academician Stevan Pilipović was the president of the Scientific Council of the Science Fund, whose member was Academician Miodrag Čolić; all of them were at the same time members of the SASA Academic Committee for Science.

President of the Academic Committee for Science, Academician Zoran Knežević, ex-officio took part in the work of the SASA Academic Committee for the Serbian Question. In addition, he also ex-officio participated in the organization of the scientific conference "Science and Philosophy", which was held on 21 and 22 October 2020 at the SASA Grand Hall. In early 2020, the Committee adopted its 2019 Work Report, as well as the Work Plan and Financial Plan for 2020.

DEPARTMENT OF CHEMICAL AND BIOLOGICAL SCIENCES

PHYSICAL CHEMISTRY

Project: **THEORETICAL INVESTIGATION OF THE VIBRONIC INTERACTION IN TETRA-ATOMIC MOLECULES**

(Academician Miljenko Perić)

A variational method for quantum chemical ab initio handling of the vibronic and spin-orbit coupling in molecules with linear equilibrium geometry has been developed.

Project: **ELECTROCATALYSIS IN CONTEMPORARY PROCESSES OF ENERGY CONVERSION**

(Academician Slavko Mentus)

Scientific investigations were carried out in the laboratories of the Faculty of Physical Chemistry. According to the working plan for 2020, carbon materials-preferably graphene (1,2,4), as well as crystalline polyphosphates were investigated as the electrode materials of alkaline-ion batteries. Also, nanodispersed carbon materials and composites were examined as the electrocatalysts of fuel cells (3).

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1. Pašti I. A., Dobrota A. S., Mentus S. V., 2020: Modelling and Simulations of Nanostructures, in **Fascinating World of Nanosciences and Nanotechnologies**, Serbian Academy of Sciences and Arts, **Lecture series**, book 6.
 2. Novčić K. A., Dobrota A. S., Petković M., Johansson B., Skorodumova N. V., Mentus S. V., Pašti I. A., 2020: Theoretical analysis of doped graphene as cathode catalyst in Li-O₂ and Na-O₂ batteries -the impact of the computational scheme. **Electrochimica Acta**, 354, 136735.

3. Mladenović D., Vujković M., Mentus S., Santos D. M. F., Rocha R. P., Sequeira C. A., Figueiredo J. L., Šljukić B., 2020: Carbon-Supported Mo₂C for Oxygen Reduction Reaction Electrocatalysis. **Nanomaterials**, 10, 1805.
 4. Dobrota A. S., Pašti I. A., Mentus S. V., Johansson B., Skorodumova N. V., Altering the reactivity of pristine, N- and P-doped graphene by strain engineering: A DFT view on energy related aspects. **Applied Surface Science**, 514, 145937.
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CHEMISTRY

RESEARCHES IN MATHEMATICAL CHEMISTRY

(Academician Ivan Gutman)

In the plan for 2020 we pointed out two directions of the intended research. Because of health problems, mainly earlier initiated activities were completed and published, but also some new were produced. Here we state those results that were published in 2020.

(a) The papers 1, 3, 4, 5, and 6 are studies of graph energies.

(b) The papers 2, 7, 8, 9, and 10 are concerned with investigations of chemically interesting graph invariants, especially those related to distance and vertex degrees.

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1. Gutman I., 2020: Cycle energy and its size dependence. **Discrete Applied Mathematics**, 284, 534–537.
 2. Hua H., Gutman I., Wang H., 2020: Comparing eccentricity-based graph invariants. **Discussiones Mathematicae Graph Theory**, 40, 1111–1125.
 3. Gutman I., Oboudi M. R., 2020: Bounds on graph energy. **Discrete Mathematics Letters**, 4, 1–41.
 4. Gutman I., Filipovski S., Jajcay R., 2020: Variations on McClelland's bound for graph energy. **Discrete Mathematics Letters**, 3, 57–60.
 5. Redžepović I., Furtula B., Gutman I., 2020: Relating total π -electron energy of benzenoid hydrocarbons with HOMO and LOMO energies. **MATCH Communications in Mathematical and in Computer Chemistry**, 84, 229–237.
 6. Akbari S., Ghahremani M., Gutman I., Koorepazan-Moftakhar F., 2020: Orderenergetic graphs. **MATCH Communications in Mathematical and in Computer Chemistry**, 84, 325–343.
 7. Gutman I., Milovanović E., Milovanović I., 2020: Beyond the Zagreb indices. **AKCE International Journal of Graphs and Combinatorics**, 17, 74–85.
 8. Ramane H. S., Talwar S. Y., 2020: Gutman I., 2020: Zagreb indices and coincidences of total graph, semi-total point graph and semi-total line graph of subdivision graphs. **Mathematics Interdisciplinary Research**, 5, 1–12.

9. Ghalavand A., Ashrafi A., Gutman I., 2020: New upper and lower bounds for some degree based graph invariants. **Kragujevac Journal of Mathematics**, 44, 181–188.
 10. Gutman I., Matejić M., Milovanović E., Milovanović I., 2020: Lower bounds for inverse sum index index of graphs. **Kragujevac Journal of Mathematics**, 44, 551–562.
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Project: **NEW BIOACTIVE MOLECULES BASED ON NATURAL PRODUCTS**

(Academician Bogdan Šolaja)

In 2020, the research has continued towards studying the anticancer properties of substituted hinolines and determining the of their action. Specific activity of certain derivatives has been established on certain tumor cell lines in 2 D and 3 D experiments. The significant activity in the xenograft model of tumors in zebra-fish embryos with angiogenesis suppression of growth and metastasis of 90% at IC50 concentration has been also found. The results of the testing of the anticancer activity of our compounds demonstrated by the xenograft test unequivocally turns our attention on further research into the pharmacological properties of these compounds.

Srbljanović J., Bobić B., Štajner T., Uzelac A., Opsenica I., Terzić-Jovanović N., Bauman N., Šolaja B. A., Djurković-Djaković O., 2020: Aminoquinolines afford resistance to cerebral malaria in susceptible mice. **Journal of Global Antimicrobial Resistance**, 23, 20–25.

Project: **PHYTOCHEMICAL INVESTIGATION OF SECONDARY METABOLITES FROM PLANTS AND FUNGI AND THEIR BIOTRANSFORMED PRODUCTS**

(Academician Slobodan Milosavljević)

In continuation of the phytochemical investigation of endemic genus *Amphoricarpus*, a metabolomic study of secondary cytotoxic metabolites of the genus, using NMR and FTIR spectroscopy in combination with dry-column flash chromatography was performed [ref. 1].

Thirteen previously undescribed lanostane triterpenoids, as well as seventeen known analogues were isolated from the fruiting bodies of the mushroom *Fomitopsis betulina* and characterized using spectral data. Among the known compounds, notable cytotoxicities against HL60 leukemia cells were noticed for two compounds (fomitocide L and fomitocide N).

Cvetković M., Damjanović A., Stanojković T. P., Đorđević I., Tešević V., Milosavljević S., Gođevac D., 2020: Integration of dry-column flash chromatography with NMR and FTIR metabolomics to reveal cytotoxic metabolites from *Amphoricarpos autariatus*. **Talanta**, 206, 120248, <https://doi.org/10.1016/j.talanta.2019.120248>.

THE DEVELOPMENT OF NEW SYNTHETIC METHODS AND THEIR APPLICATION IN SYNTHESIS OF NATURAL PRODUCTS AND BIOLOGICALLY ACTIVE COMPOUNDS

(Academician Radomir N. Saičić)

The project encompasses the total syntheses of natural products and biologically active compounds (waihoensene, conidiogenone B, and other structurally complex, polycyclic terpenes), the development of novel synthetic methods (new catalysts for photoredox- and photo-energy-transfer cyclizations), as well as the development of novel drugs against COVID-19 (this research is funded by the Science Fund of the Republic of Serbia).

Project: METAL COMPLEXES AS POTENTIAL THERAPEUTIC AGENTS

(Corresponding Member Miloš I. Đuran)

The following tasks were completed during 2020:

1) Synthesis, structural characterization, antimicrobial evaluation and DNA/BSA binding studies of silver(I) complexes with 1,10-phenanthroline derivatives, 1,5-naphthyridine, 1,2-bis(4-pyridyl)ethane, 1,2-bis(4-pyridyl)ethene, different pyridine-4,5-dicarboxylates, and a pyridine-based macrocyclic ligand.

2) Synthesis, structural characterization and antimicrobial evaluation of zinc(II) complexes with different aromatic nitrogen-containing heterocyclic ligands (quinazoline, 1,5-naphthyridine and 4,7-phenanthroline).

3) Synthesis, structural characterization and biological evaluation of polynuclear manganese(II) and cadmium(II) complexes with 2,2-dimethyl-1,3-propanediamine-*N,N,N',N'*-tetraacetate.

4) *In vitro* cytotoxic activities, DNA- and BSA-binding studies of dinuclear palladium(II) complexes with different pyridine-based bridging ligands (4,4'-bipyridine, 1,2-bis(4-pyridyl)ethane and 1,2-bis(4-pyridyl)ethene).

5) NMR (^1H and ^{13}C) study of the reactions between $[\text{Au}(\text{en})\text{Cl}_2]^+$ (en is ethylenediamine) and $[\text{AuCl}_4]^-$ complexes with glycyl-L-histidine, L-alanyl-L-histidine and L-seryl-L-histidine dipeptides.

Đurić S. Ž., Mojicevic M., Vojnovic S., Wadepohl H., Andrejević T. P., Stevanović N. Lj., Nikodinovic-Runic J., Djuran M. I., Glišić B. Đ., 2020: Silver(I) complexes with 1,10-phenanthroline-based ligands: the influence of epoxide function on the complex structure and biological activity. **Inorganica Chimica Acta**, 502, Article ID: 119357. doi: 10.1016/j.ica.2019.119357

Đurić S., Vojnovic S., Pavic A., Mojicevic M., Wadepohl H., Savić N. D., Pop-savin M., Nikodinovic-Runic J., Djuran M. I., Glišić B. Đ., 2020: New polynuclear 1,5-naphthyridine-silver(I) complexes as potential antimicrobial agents: the key role of the nature of donor coordinated to the metal center. **Journal of Inorganic Biochemistry**, 203, Article ID: 110872. doi: 10.1016/j.jinorgbio.2019.110872

Đurić S. Ž., Vojnovic S., Andrejević T. P., Stevanović N. Lj., Savić N. D., Nikodinovic-Runic J., Glišić B. Đ., Djuran M. I., 2020: Antimicrobial activity and DNA/BSA binding affinity of polynuclear silver(I) complexes with 1,2-bis(4-pyridyl) ethane/ethene as bridging ligands. **Bioinorganic Chemistry and Applications**, Volume 2020, Article ID 3812050. doi: 10.1155/2020/3812050

Andrejević T. P., Milivojevic D., Glišić B. Đ., Kljun J., Stevanović N. Lj., Vojnovic S., Medic S., Nikodinovic-Runic J., Turel I., Djuran M. I., 2020: Silver(I) complexes with different pyridine-4,5-dicarboxylate ligands as efficient agents for the control of cow mastitis associated pathogens. **Dalton Transactions**, 49, 6084–6096. doi: 10.1039/D0DT00518E

Andrejević T. P., Warzajtis B., Glišić B. Đ., Vojnovic S., Mojicevic M., Stevanović N. Lj., Nikodinovic-Runic J., Rychlewska U., Djuran M. I., 2020: Zinc(II) complexes with aromatic nitrogen-containing heterocycles as antifungal agents: synergistic activity with clinically used drug nystatin. **Journal of Inorganic Biochemistry**, 208, Article ID: 111089.

Gitarić J., Stanojević I. M., Rodić M. V., Drašković N. S., Stevanović M., Vojnović S., Djuran M. I., Glišić B. Đ., 2020: Structural characterization and biological evaluation of polynuclear Mn(II) and Cd(II) complexes with 2,2-dimethyl-1,3-propanediamine-*N,N,N',N'*-tetraacetate. The influence of ligand structure and counter cation on the complex nuclearity. **Polyhedron**, 188, Article ID: 114688. doi: 10.1016/j.poly.2020.114688

Franich A. A., Živković M. D., Milovanović J., Arsenijević D., Arsenijević A., Milovanović M., Djuran M. I., Rajković S., 2020: *In vitro* cytotoxic activities, DNA- and BSA-binding studies of dinuclear palladium(II) complexes with different pyridine-based bridging ligands. **Journal of Inorganic Biochemistry**, 210, Article ID: 111158. doi: 10.1016/j.jinorgbio.2020.111158

Živković M. D., Franich A. A., Ašanin D. P., Drašković N. S., Rajković S., Djuran M. I., 2020: Hydrolysis of the amide bond in L-methionine- and L-histidine-containing dipeptides in the presence of dinuclear palladium(II) complexes with benzodiazines bridging ligands. **Journal of Solution Chemistry**, 49, 1082–1093. doi: 10.1007/s10953-020-01012-z

Savić N. D., Petković B. B., Vojnovic S., Mojicevic M., Wadepohl H., Olaiifa K., Marsili E., Nikodinovic-Runic J., Djuran M. I., Glišić B. Đ., 2020: Dinuclear silver(I) complexes with a pyridine-based macrocyclic type of ligand as anti-

crobial agents against clinically relevant species: the influence of the counteranion on the structure diversification of the complexes. **Dalton Transactions**, 49, 10880–10894. doi: 10.1039/D0DT01272F

Ašanin D. P., Stanojević I. M., Andrejević T. P., Glišić B. Đ., Djuran M. I., 2020: Reactions of gold(III) complexes with L-histidine-containing dipeptides: Influence of chelated ligand and N-terminal amino acid on the rate of peptide coordination. **Journal of Coordination Chemistry**, 73, 2182–2194. doi: 10.1080/00958972.2020.1817415

Đurić S. Ž., Waržajtis B., Drašković N. S., Savić N. D., Gurešić D. M., Rychlewska U., Djuran M. I., 2020: Modulation of the structure of octahedral 1,3-pdta-nickel(II) complex by introducing methyl substituents at the central 1,3-propanediamine carbon atom: The crystal structure of $[\text{Mg}(\text{H}_2\text{O})_5\text{Ni}(2,2\text{-diMe-1,3-pdta})] \cdot 1.5\text{H}_2\text{O}$. **Polyhedron**, 191, Article ID: 114812. doi: 10.1016/j.poly.2020.114812

Glišić B. Đ., Waržajtis B., Hoffmann M., Rychlewska U., Djuran M. I., 2020: Mononuclear gold(III) complexes with diazanaphthalenes: the influence of the position of nitrogen atoms in the aromatic rings on the complex crystalline properties. **RSC Advances**, 10, 44481–44493. doi: 10.1039/d0ra08731a

Andrejević T. P., Glišić B. Đ., Djuran M. I., 2020: Amino acids and peptides as versatile ligands in the synthesis of antiproliferative gold complexes, **Chemistry**, 2, 203–218. doi: 10.3390/chemistry2020013

Project: **SYNTHESIS AND BIOLOGICAL EVALUATION OF NEW ANTITUMOR AND ANTIMICROBIAL AGENTS**

(Corresponding Member Velimir Popsavin)

A new total synthesis of natural δ -lactone cleistenolide (**1**) was achieved based on the concept of “Chiral Templates” and on D-glucose as a chiral precursor. The key steps of the synthesis are: (1) initial degradation of the chiral precursor for one carbon atom, (2) C_2 -fragment chain extension using a Z-selective Wittig olefination, and (3) the final δ -lactonization. Two independent synthetic routes were also developed: the first one, allowing the synthesis of 7-substituted cleistenolide analogues and the second one, which is suitable for the preparation of 4-substituted analogues and derivatives of natural product **1**.

Natural product **1** and analogues were tested *in vitro* to evaluate their cytotoxicity against K562, HL-60, Jurkat, Raji, MCF-7, MDA-MB 231, HeLa, A549, and MRC-5 cell lines. All cleistenolide analogues showed significantly higher cytotoxicity than lead **1** toward most tested cell lines. Most of the synthesized compounds are more active than doxorubicin toward at least one malignant cell line, but were almost completely inactive against normal MRC-5 cells. The structural characteristics of the tested compounds responsible for their antiproliferative activity were identified by the SAR analysis. These are:

the presence of additional substituents in the aromatic ring, the replacement of the benzoyl group with an O-7 cinamoyl group, and the introduction of conformational constraints by the construction [1,3,3] of the bicyclic ring system.

Several goniofufurone bioisosteres with simplified structures were designed, synthesized, and evaluated for their *in vitro* antitumour activity, on a panel of human tumour cell lines. Defenylated derivatives showed excellent antitumor activities in K562 and Raji cell cultures with IC₅₀ values in the range of 3.0–9.3 nM. Each of goniofufurone analogues lacking the tetrahydrofuran ring (**4**, **5** and **6**) strongly inhibited the growth of at least one malignant cell line, with IC₅₀ values in the range of 11–30 nM. The multistep synthesis of two new goniofufurone bioisosteres containing a thiazole ring was also achieved. The synthesized compounds showed strong *in vitro* antitumour activity against several human tumour cell lines.

Benedeković G., Popsavin M., Kovačević I., Kojić V., Rodić M., Popsavin V., 2020: Synthesis, antiproliferative activity and SAR analysis of (–)-cleistenolide and analogues. **European Journal of Medicinal Chemistry**, 202, 112597. doi: <https://doi.org/10.1016/j.ejmech.2020.112597>

Srećo Zelenović B., Grabež S., Popsavin M., Kojić V., Francuz J., Popsavin V., 2020: Synthesis and antiproliferative activity of simplified goniofufurone analogues. **Journal of the Serbian Chemical Society**, 85 (12), 000–000.-: <https://doi.org/10.2298/JSC200730056S>

Project: **EFFECTS OF ENVIRONMENTAL POLLUTION ON EXPRESSION AND MODIFICATION OF FOOD PROTEINS**

(Corresponding Member Tanja Ćirković Veličković)

Molecules found in the environment, i.e. heavy metals, organic contaminants, microplastics are present in the air, soil and water and can get in contact with food or other air-borne respirable particles. That way, directly or indirectly, environmental contaminants may influence human health. The project goal is to investigate the effect of environmental pollution on the quality and safety of food, as well as modern omics analytical methods that can be applied to the characterization of changes the environmental contaminants may induce in food molecules, particularly proteins. Therefore, in the research focus is the development of proteomics methods that could analyze changes in protein expression and their modifications in correlation with the type and concentration of environmental contaminants.

During 2020 the most significant results obtained demonstrated that metal-oxo clusters of Hf may specifically and partially digest proteins.

Proteolytic sites on fibrinogen were mapped using methods of high-resolution mass spectrometry. For that purpose, a sample preparation method that will enable the protein analysis by proteomics was developed and implemented for the first time. The results were published in a distinguished journal of high international reputation in cooperation with professor Paract-Vogt from KU Leuven, Belgium.

A part of research activities during 2020 focused on proteins of the new corona virus. Relevant antigenic proteins of the new corona virus were successfully expressed in recombinant form for the purpose of producing national tests based on the detection of antibodies in COVID-19 patients. The produced antigenic proteins are tested at the INEP institute within the project that will result in the registration of the test for detection of antibodies to the new corona virus. For the purposes of testing immunological responses in COVID-19 patients, the antigens are made available to collaborating researchers from the Medical Faculty of Kragujevac and Medical Faculty of Belgrade.

Nikolic M. R., Minic S., Macvanin M., Stanic-Vucinic D., Cirkovic Velickovic T., 2020: Analytical Protocols in Phycobiliproteins Analysis. In: **Pigments from Microalgae Handbook**, Springer Nature Switzerland AG, E. Jacob-Lopes, M. Isabel Queiroz, L. Queiroz Zepka (Eds.), 179–201. doi: 10.1007/978-3-030-50971-2_8

He W., Zhang T., Cirkovic Velickovic T., Li S., Lyu Y., Wang L., Yi J., Liu Z., He Z., Wu X., 2020: Covalent conjugation with (–)-epigallo-catechin 3-gallate and chlorogenic acid changes allergenicity and functional properties of Ara h1 from peanut. **Food Chemistry**, 2020, 331: Art.No. 127355. doi: 10.1016/j.foodchem.2020.127355

Moons J., de Azambuja F., Mihailovic J., Kozma K., Smiljanic K., Amiri M., Cirkovic Velickovic T., Nyman M., Parac-Vogt T.N., 2020: Discrete Hf18 Metal-oxo Cluster as a Heterogeneous Nanozyme for Site-Specific Proteolysis. **Ange-wandte Chemie - International Edition**, 2020, 59 (23), 9094–9101 (Chemistry, Multidisciplinary 15/177. doi: 10.1002/anie.202001036

Zhang T., Hu Z., Cheng Y., Xu H., Velickovic T.C., He K., Sun F., He Z., Liu Z., Wu X., 2020: Changes in Allergenicity of Ovalbumin in Vitro and in Vivo on Conjugation with Quercetin, **Journal of Agricultural and Food Chemistry**, 2020, 68 (13), 4027–4035. DOI: 10.1021/acs.jafc.0c00461

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mine complexes with lysozyme and cytochrome c, **Journal of Biological Inorganic Chemistry**, 2020, 25 (2), 253–265.

Maja Krstić Ristivojević, Jeanette Grundström, Danijela Apostolović, Mirjana Radomirović, Vesna Jovanović, Vlad Radoi, MB Kiewiet, Vladana Vukojević, Tanja Ćirković Veličković, Marianne van Hage, 2020: Alpha-Gal on the Protein Surface Hampers Transcytosis through the Caco-2 Monolayer. **International Journal of molecular sciences**, 2020, 21 (16), 5742.

Joana Costa, Simona Lucia Bavaro, Sara Benedé, Araceli Diaz-Perales, Cristina Bueno-Diaz, Eva Gelencser, Julia Klueber, Colette Larré, Daniel Lozano-Ojalvo, Roberta Lupi, Isabel Mafra, Gabriel Mazzucchelli, Elena Molina, Linda Monaci, Laura Martín-Pedraza, Cristian Piras, Pedro M Rodrigues, Paola Roncada, Denise Schrama, Tanja Ćirković-Velickovic, Kitty Verhoeckx, Caterina Villa, Annette Kuehn, Karin Hoffmann-Sommergruber, Thomas Holzhauser, 2020: Are Physicochemical Properties Shaping the Allergenic Potency of Plant Allergens? **Clinical Reviews in Allergy and Immunology**, 2020, <https://doi.org/10.1007/s12016-020-08810-9>

Jelena Radosavljević, Danijela Apostolović, Jelena Mihailović, Marina Atanasković-Marković, Lidija Burazer, Marianne van Hage, Tanja Ćirković Veličković 2020: Digestomics of cow's milk: short digestion-resistant peptides of casein form functional complexes by aggregation. **Foods**, 2020, 9 (11), 1576.

BIOLOGY

Project: ADAPTIVE LIMITS OF POPULATION-GENETIC POLYMORPHISM

(Academician Dragoslav Marinković)

A long-time analysis of individual and population-genetic variability in model-organism *Drosophila melanogaster*, includes some 8–10 polymorphic and sixteen mono-morphic gene-enzyme systems. Potential variability of ca. 82.000 possible genotypes is reduced in a few hundred analyzed individuals to no more than 160 realized combinations, some of them being repeated many times. This clearly proves that only specific hereditary programs are realized and exposed to natural selection, and not the total genetic variability, what is predicted from basic Mendelian rules of inheritance. Due to the fact that the majority of this adaptive polymorphism are based on the combinational variation of polygenic complexes, the scope of allelic variation should not be basically different in succeeding generations, which explains the maintenance of genetic structures under different ecological conditions, as well as when changes of the size of specific populations occur. All reasons exist that Gametes, not Zygotes, should be assigned as the start of every new generation,

as of the genomic basis of its formation, giving rise to succeeding growth and development.

Our experience in medical and anthropo-genetics, as well as in application of bioethical approaches in scientific studies, is presented at respectful meetings held in our country in this and earlier years.

Marinković D., Cvjetičanin S., 2020: Genetic balances that maintain potential hypo- and hyper-activities in physiological and behavioral characters. **International Journal of Medical Research & Health Sciences**, Vol. 5, Issue 8, 2020, 36–38.

Petronić I., Marinković D., Nikolić D., ..., Cvjetičanin S., 2020: Morphogenetic variability as potential biomarker of neurogenic lesion degree in children with spina bifida. **Healthcare**, March 2020, 8, 68. doi:10.3390

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Milošević-Djordjević O., Grujičić D., Ranković B., Kosanić M., 2020: *In vitro* antigenotoxic activities of lichens *Cetraria islandica* and *Lasallia pustulata*. **Romanian Biotechnological Letters**, 25 (5), 1915–1921.

Project: **STUDY OF THE MODE OF INHERITANCE
OF SUNFLOWER RESISTANCE TO THE NEW RACES
OF BROOMRAPE (*OROBANCHE CUMANA* WALL)**

(Academician Dragan Škorić)

The results obtained at the three localities in Romania have not been presented in their entirety so as to avoid unnecessary information overload from reporting the data for all 30 interspecies hybrids. Therefore, the results of ten hybrids resistant at all three localities and two controls – one resistant to the eight broomrape races and the other sensitive to all known broomrape races have been included in the report. The results are notable because they revealed genes for resistance to the new broomrape races in certain wild sunflowers and their interspecies hybrids, indicating the discovery of valuable

sources of resistance to new broomrape races which have not yet spread in sunflower production.

It can be stated with certainty that these sources of resistance will in the future enable sunflower breeders to develop new hybrids with a wide-ranging resistance to new broomrape races.

The results obtained in the pots are not reliable because a small number of sunflower plants were examined. For these reasons, all experiments will be repeated with a larger number of sunflowers in the experimental plots.

We can conclude that, if resistance is observed in the coming years, we will obtain globally valuable results.

We performed a number of analyses of seed quality parameters, namely the oil content, protein content, composition of higher fatty acids and tocopherols. The results will not be presented in this year's report, but will be published next year when more reliable results are obtained. We can be satisfied with the current results.

Škorić D., Joița-Păcureanu M., Gorbachenko F., Gorbachenko O., Maširević S., 2020: Dynamics of change i broomrape population (*Orobancha cumana* Wallr.) in Romania and Russia (Black Sea area). **Helia**, 2020, 1–14 (Publish online 29, December 2020). <https://doi.org/10.1515/helia/2020/0025>

Project: **HOROLOGICAL AND ECOLOGICAL FACTORS OF THE DIFFERENTIATION OF TAXONS IN THE OROPHITIC FLORA OF SERBIA AND THE NEIGHBOURING TERRITORIES OF THE CENTRAL PART OF THE BALKAN PENINSULA**

(Academician Vladimir Stevanović)

This year's research related to the project covered several topics:

1. The description of the new genus *Hayekia* separated from the species *Asyneuma comosiforme* from Albania;
2. The first finding of the amphi-Adriatic species *Stipa crassiculmis* subsp. *picentina* (Poaceae) for the Balkan Peninsula;
3. An analysis of the distribution, ecology and conservation status of the steppe flora in Serbia;
4. Determining the taxonomic status and phylogeography of the species *Goniolimon tataricum* (Plumbaginaceae) and its relatives in the Balkan Peninsula.

Đorđević V., Tsiftsis S., Lakušić D., Jovanović S., Jakovljević K., Stevanović V., 2020: Patterns of distribution, abundance and composition of forest terrestrial orchids. **Biodiversity and Conservation**, 29, 4111–4134.

Đorđević V., Tsiftsis S., Lakušić D., Jovanović S., Jakovljević K., Stevanović V., 2020: Orchid species richness and composition in relation to vegetation types. **Wulfenia**, 27, 183–210.

Buzurović U., Tomović G., Niketić M., Bogdanović S., Aleksić J. M., 2020: Phytogeographic and taxonomic considerations on *Goniolimon tataricum* (Plumbaginaceae) and its relatives from south-eastern Europe and the Apennine Peninsula. **Plant Systematics and Evolution**, 306 (2), 29, 1–22.

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Sabovljević M. S., Tomović G., Niketić M., Lazarević P., Lazarević M., Latinović J., Latinović N., Kabaš E., Đurović S. Z., Kutnar L., Skudnik M., Pantović J., Stevanoski I., Vukojičić S. Veljić M., 2020: New records and noteworthy data of plants, algae and fungi in SE Europe and adjacent regions, 1. **Botanica Serbica**, 44 (1), 81–87.

Tomović G., Sabovljević M. S., Djokić I., Petrović P., Djordjević V., Lazarević P., Mašić E., Barudanović S., Štefănuț S., Niketić M., Butorac B., Pantović J., Hajrudinović-Bogunić A., Bogunić F., Kabaš E., Vukojičić S., Kuzmanović N., Đurović S. Z., Buzurović U., 2020 : New records and noteworthy data of plants, algae and fungi in SE Europe and adjacent regions, 2. **Botanica Serbica**, 44 (2), 251–259.

Jakovljević K., Tomović G., Đorđević V., Niketić M., Stevanović V., 2020: Steppe flora in Serbia - distribution, ecology, centers of diversity and conservation status. **Folia Geobotanica**, 55 (1), 1–14.

Project: **STUDYING THE ROLES OF SOX PROTEINS IN PROMOTING MALIGNANT CELL PHENOTYPES (SOPROMAL)**

(Academician Milena Stevanović)

We have examined the expression profiles of selected *SOX* genes in glioblastoma, several pancreatic ductal adenocarcinoma, as well as in breast carcinoma cell lines. The 3D model system for cell cultivation was developed using the perfusion bioreactor in conjunction with alginate hydrogels as of tumor cell carriers. This model system will be used to study the effects of modulation of *SOX* genes expression on the malignant potential of tumor cells.

We have studied the effects of bioactive natural and synthetic compounds on the proliferative capacity and viability of different types of cancer cells. The anti-proliferative effect of *Ononis spinosa* L. extract was detected on glioblastoma and breast cancer cells, while Coumarin derivative significantly reduced the viability of pancreatic cancer cells.

1. Stojković D., Drakulić D., Gašić U., Zengin G., Stevanović M., Rajčević N., Soković M., 2020: *Ononis spinosa* L., an edible and medicinal plant: UHPLC-

- LTQ-Orbitrap/MS chemical profiling and biological activities of the herbal extract. **Food & Function**, 11, 7138–7151.
2. Jovanović S., Syrgiannis Z., Budimir M., Milivojević D., Jovanovic D., Pavlović, V., Papan J., Bartenwerfer M., Mojsin M., Stevanović M., Todorović Marković B., 2020: Graphene quantum dots as singlet oxygen producer or radical quencher - The matter of functionalization with urea/thiourea. **Materials Science and Engineering, C: Materials for Biological Applications**, 109, 110539.
 3. Lazić A., Popović J., Paunesku T., Woloschak G. E., Stevanović M. 2020: Insights into platinum-induced peripheral neuropathy-current perspective. **Neural Regeneration Research**, 15, 1623–1630.
 4. Stojković D., Dias M. I., Drakulić D., Barros L., Stevanović M., Ferreira, I. C. F. R., & Soković M., 2020: Methanolic extract of the herb *Ononis spinosa* L. is an antifungal agent with no cytotoxicity to primary human cells. **Pharmaceuticals (Basel)**, 13, E78.
 5. Stojkowska J., Zvicer J., Milivojević M., Petrović I., Stevanović M., Obradović B., 2020: Validation of a novel perfusion bioreactor system in cancer research. **Hemijška industrija**, 74, 187–196.
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Project: **COMPARATIVE MORPHOLOGY AND MOLECULAR PHYLOGENY OF ERIOPHYOID MITES (ACARI: PROSTIGMATA, ERIOPHYOIDEA)**

(Academician Radmila Petanović)

The phylogenetic relationships of the genus *Trisetacus* using two genes (COI and 28S D1-2 region), a representative taxon sampling (nearly 40% of known diversity), and a large set of close and distant outgroups, were analyzed. The analyses suggest the presence of a dichotomy between *Trisetacus* associated with Cupressaceae and Pinaceae. Genital types are strongly correlated with lineages discovered by molecular phylogenetic analyses, suggesting that the female genital morphology is both evolutionary conserved and is a factor that has an influence on patterns in this group of mites. In addition, molecular phylogeny and comparative analyses of female internal genitalia within the family Phytoptidae associated with angiosperms, were studied. Eight molecular clades were unambiguously supported by shapes and topography of the spermathecal apparatus and genital apodemes.

Chetverikov P. E., Cvrković T., Efimov P. G., Klimov P. B., Petanović R. U., Romanovich A. E., Schubert M. A., Sukhareva S. I., Zukoff S N., Amrine J. , 2020) Molecular phylogenetic analyses reveal a deep dichotomy in the conifer-inhabiting genus *Trisetacus* (Eriophyoidea:Nalepellidae), with the two lineages differing in their female genital morphology and host associations. **Experimental and Applied Acarology**, 81, 287–316. <https://doi.org/10.1007/s10493-020-00503-4>

Chetverikov P. E., Craemer C., Cvrkovic T. K., Klimov P. B., Petanović R, U., Romanovich A. E., Sukhareva S. I., Zukoff S. N., Bolton S. J., Amrine, J. W. Jr., 2020: Molecular phylogeny of the phytoparasitic mite family Phytoptidae (Acari-formes: Eriophyoidea) identified the female genitalic anatomy as a major macro-evolutionary factor and revealed multiple origins of gall induction. **Experimental and Applied Acarology**. <https://doi.org/10.1007/s10493-020-00571-6>

ACADEMIC COMMITTEE FOR STUDY OF FLORA AND VEGETATION IN SERBIA

(Academician Vladimir Stevanović)

The manuscript of the new edition of “Flora of Serbia 3” (Flora Srbije 3) was favourably peer reviewed by Academician Vlado Matevski, Macedonian Academy of Sciences and Arts, and Academician Vukić Pulević, Montenegrin Academy of Sciences and Arts, so that its preparation for printing will begin soon. The manuscript of “Flora od Serbia 3” underwent minor changes relative to the planned content that had to follow the previous editions This is why the preparation of the manuscript for peer reviewing was prolonged. Namely, changes were made in compliance with a new philogeny (APG III and IV), which included several new families, positioned in different orders according to the earlier Cronquist philogeny, applied in the previous edition titled “Flora of SR Serbia I-VIII”. The new edition of “Flora of Serbia 3” will encompass the following families and genera, including the number of species (given in parentheses) and authors.

The manuscript of the new edition of “Flora of Serbia 3” has 272 pages of text, 54 tables with drawings and distribution maps. Altogether, “Flora of Serbia 3” presents 132 species within 31 genera and 12 families.

The SASA published “A Critical List of Vascular Flora 1 – Lycopodiopsida, Equisetopsida, Polypodiopsida, Gnetopsida, Pinopsida and Liliopsida” (Kritička lista vaskularne flore 1 – Lycopodiopsida, Equisetopsida, Polypodiopsida, Gnetopsida, Pinopsida i Liliopsida), authored by Marjan Niketić and Gordana Tomović et al. (D. Lakušić, V. Randjelović, G. Anačkov, V. Djordjević, P. Boža, P. Lazarević, R. Perić). The publication has 289 pages.

The SASA Committee for Flora and Vegetation of Serbia and the SASA Branch in Niš organized a one-day scientific meeting to mark the 180th birth anniversary and the 130th anniversary of the death of Sava Petrović, a full member of the Serbian Learned Society and corresponding member of the Serbian Royal Academy. On this occasion six invited lectures were given.

At the 13th Symposium on the Flora of Southeastern Serbia and Neighbouring Regions, Stara planina Mt., Serbia (Randjelović V., Stojanović-Radić Z., Nikolić D. (eds.)), held from 20 to 23 June 2019, the Committee members and their associates presented the statements published in summary form.

Zlatković B. K., Bogosavljević S. S., 2020: Risk analysis of alien plants recorded in thermal waters of Serbia. **Weed Research**, 60 (1), 85–95.

Janković I., Kuzmanović N., Dimopoulos P., Raus T., Lakušić D., 2020: Amended Description and Notes on *Campanula kamariana* (C. sect. *Quinqueloculares*, Campanulaceae), an Endangered Endemic of Southern Peloponnesus, Greece. **Annals Botanici Fennici**, 57 (4-6), 357–366.

Novaković J. K., Mraz P., Stešević D., Marin P., Zlatković B., Lakušić D., Janačković P., 2020: Typification and taxonomic re-evaluation of *Centaurea crnogorica* and *C. gjurasinii*, two neglected yellow-flowered endemics of the Balkan Peninsula (Centaurea sect. *Acrocentron*, Asteraceae). **Phytotaxa**, 461 (2), 108–124.

Buzurović U., Tomović G., Niketić M., Bogdanović S., Aleksić J. M., 2020: Phylogeographic and taxonomic considerations on *Goniolimon tataricum* (Plumbaginaceae) and its relatives from south-eastern Europe and the Apennine Peninsula. **Plant Systematics and Evolution**, 306 (2), 29, 1–22.

Ušjak Lj., Niketić M., Drobac M., Petrović S., 2020: Chemosystematic evaluation of leaf and flower essential oils of eight *Heracleum* taxa from Southeastern Europe. **Plant Systematics and Evolution**, 306 (1), 4, 1–19.

Cvetković M., Damjanović A., Stanojković P. T., Đorđević I., Tešević V., Milosavljević S., Gođevac D., 2020: Integration of dry-column flash chromatography with NMR and FTIR metabolomics to reveal cytotoxic metabolites from *Amphoricarpus autariatus*. **Talanta**, 206, 120248.

Bokić B. S., Rat M. M., Kladar N. V., Anačkov G. T., Božin B. N., 2020: Chemical Diversity of Volatile Compounds of Mints from Southern Part of Pannonian Plain and Balkan Peninsula – New Data. **Chemistry and Biodiversity**, 17 (8), e2000211.

Raca I., Harpke D., Shuka L., Randjelović V., 2020: A new species of *Crocus* ser. *Verni* (Iridaceae) with 2 n= 12 chromosomes from the Balkans. **Plant Biosystems**, 154 (1), 1–7.

Nikolić D., Jenačković Gocić D., Jušković M., Randjelović V., 2020: Morphological differentiation of populations of *Bolboschoenus* taxa in Serbia. **Plant Biosystems - An International Journal Dealing with all Aspects of Plant Biology**, 154 (4), 488–502.

Ellis L. T., Afonina O. M., Atwood J. J., ..., Sabovljević M. S., ..., Wolski G. J., 2020: New national and regional bryophyte records, 62. **Journal of Bryology**, 42 (2), 195–208.

Sabovljević M. S., Tomović G., Niketić M., ..., Veljić M., 2020: New records and noteworthy data of plants, algae and fungi in SE Europe and adjacent regions, 1. **Botanica Serbica**, 44 (1), 81–87.

Papp B., Sabovljevic M. S., Pantovic J., 2020: A contribution to the exploration of the bryophyte flora of the Galičica National Park (the Republic of North Macedonia) with special attention to the species of conservation interest. **Nova Hedwigia, Beihefte Beih.**, 150, 117–132.

Sabovljevic M. S., Sabovljevic A. D. (eds.), 2020: **Bryophytes**. Intech Open. doi: 10.5772/intechopen.73787

Alegro A., Šegota V., Vuković N., Kabaš E., Lakušić D., 2020: *Patzkea paniculata* grasslands in the north-western Dinarides – a crossroad between the Alps and the Balkan mountains. **Phytocoenologia**, 50 (3), 279–311.

ACADEMIC COMMITTEE FOR THE STUDY OF THE FAUNA OF SERBIA

(Academician Radmila Petanović)

In 2020, two monographs were published: “**Fauna of phytophagous species of gall midges in Serbia (Diptera: Cecidomyiidae, Cecidomyiinae)**”, by Dušanka Simova-Tošić, and “**Fauna of Lepidoptera of the Kopaonik National Park, part of the first 300 butterflies of the high Kopaonik**” by Dejan Stojanović and Predrag Šumarac. The long-term research of the amphibians of the families Salamandridae, Bombinatoridae, and Ranidae, continued. Furthermore, special attention was paid to the examination of the underground and aboveground fauna of certain groups of beetles in the karst areas of Serbia. The research continued about the fauna of parasitic wasps (Braconidae, Aphidiinae) of Serbia. The year 2020 saw continued implementation of an extensive research plan about the insect fauna of the high mountain areas of the Republic of Serbia, the insect fauna of the canyons and the gorges of Eastern Serbia as well as the insect fauna along the Danube river through the Republic of Serbia.

Dimkić I., Stanković S., Kabić J., Stupar M., Nenadić M., Ljaljević-Grbić M., Žikić, V., Vujisić L., Tešević V., Vesović N., Pantelić D., Savić-Šević S., Vukojević J., Čurčić S. 2020: Bat guano-dwelling microbes and antimicrobial properties of the pygidial gland secretion of a trogliphilic ground beetle against them. **Applied Microbiology and Biotechnology**, 104, 4109–4126.

Vranić S., Čurčić S., Vesović N., Mandić B., Pantelić D., Vasović M., Lazović V., Zhang W., Vujisić L., 2020: Chemistry and morphology of the pygidial glands in four Pterostichini ground beetle taxa (Coleoptera: Carabidae: Pterostichinae). **Zoology**, 142, 125772.

Vesović N., Čurčić S., Todosijević M., Nenadić M., Zhang W., Vujisić L., 2020: Pygidial gland secretions of *Carabus* Linnaeus, 1758 (Coleoptera: Carabidae): chemicals released by three species. **Chemoecology**, 30 (2), 59–68.

Ćurčić N. B., Dimitrijević R. N., Ćurčić S. B., 2020: Checklist of the pseudoscorpions (Arachnida: Pseudoscorpiones) of Serbia. **Arthropoda Selecta**, 29 (1), 13–27.

Kocić K., Petrović A., Čkrkić J., Kavallieratos N. G., Rakhshani E., Arnó J., Aparicio J., Hebert P. D. N., Tomanović Ž., 2020: Resolving the Taxonomic Status of Potential Biocontrol Agents Belonging to the Neglected Genus *Lipolexis* Förster (Hymenoptera, Braconidae, Aphidiinae) with Descriptions of Six New Species. **Insects**, 11 (10), 667.

ACADEMIC COMMITTEE „MAN AND THE ENVIRONMENT“

(Academician Marko Anđelković, passed away on 10 April 2020)
(Academician Vladimir Stevanović)

The most important activity of the SASA Committee on “Man and the Environment” was the preparation of the Proceedings of the Symposium on “The Environmental Impact of Small Hydroelectric Power Plants in Serbia” (Zbornik sa Simpozijuma o uticaju malih hidroelektrana na životnu sredinu u Srbiji), held at SASA on 6 June 2019, for printing and its monitoring. The Proceedings came out in late August 2020. Apart from eight papers, the Proceedings also include the speech of Dr. Goran Trivan, Minister of Environmental Protection, as well as the discussions and conclusions. Due to the epidemiological situation, the Proceedings have not yet been presented to the public.

During the year, the discussions on the state of the environment in Serbia were held online.

The members of the Committee carried out their research and professional activities related to the issues dealt with by the Committee in their main scientific institutions.

ACADEMIC COMMITTEE FOR THE STUDY OF THE LIVES AND WORK OF SERBIAN SCIENTISTS AND THE WRITING OF SASA’S HISTORY

(Academician Vladan Đorđević)

The 17th volume of the “Lives and Work of Serbian Scientists“ (Život i delo srpskih naučnika) Series was published in November 2020. It contains 12 papers about the following scientists:

1. Vladimir Jakšić (1824-1899)
2. Milan Jovanović Morski (1843-1896)

3. Jovan Danić (1854-1924)
4. Dobrivoje Božić (1885-1967)
5. Dragoljub Jovanović (1891-1970)
6. Simo Milošević (1896-1943)
7. Živojin Bumbaširević (1920-2008)
8. Ivan Draganić (1924-2012)
9. Mileva Prvanović (1929-2016)
10. Mirko Milić (1932-1993)
11. Sava Perović (1937-2010)
12. Marko Vukobrat Jarić (1952-1997)

The submission of several more manuscripts was announced, including a text about Academician Zoran Maksimović, authored by Vidojko Jović.

In order to adhere to the envisaged volume of the books, the scientists to be included in the next volume will be selected after a detailed analysis of their contribution.

The authors enjoyed continuous support in collecting materials about scientists. The consultations with the authors and peer reviewers were also regularly held. There are continuous efforts to have new authors write the texts for the subsequent volumes of this series.

As for the work of the Committee in the extended composition, which was assigned to organize the writing of the history of SASA, the situation did not change relative to the 2018 report.

ACADEMIC COMMITTEE ON VILLAGE

(Academician Dragan Škorić)

In 2020, due to the Covid-19 pandemic, the activities of the SASA Committee on Village were conditioned by the epidemiological situation.

In cooperation with the Office of the Minister in charge of regional development and coordination of public companies, the action project – aimed to create preconditions for the economic sustainability of family farms and demographic revival of villages – was completed. As a result of the work of all members of the Committee, the study “National Programme for the Revival of Serbian Villages“ (Nacionalni program za preporod sela u Srbiji) was prepared and presented. It deals with the current situation, problems and priorities concerning sustainable rural development. The realization of the programme of this study will fall within the competence of the newly formed Ministry of Village Care.

The activities related to the project “500 Cooperatives for 500 Villages” (500 zadruga u 500 sela) were continued. Together with Minister Milan Krkobabić more than 20 villages in Serbia were visited. The result is the formation of 750 new cooperatives. The greatest success in encouraging cooperatives was the awarding of grants to cooperatives through open competition. The papers (16) presented at the scientific meeting on “Rational Land and Water Use in Serbia“ (Racionalno korišćenje zemljišta i voda u Srbiji), which was held in late October 2020, were prepared for printing.

The presentation of the exhibition of photographs “This Is Also Serbia” (I ovo je Srbija), which shows abandoned houses and villages in Serbia, continues. It was organized at the Cultural Centre – Novo Miloševo and the Archives of Vojvodina – Novi Sad. It is planned to show it in several cities in Serbia. The aim of the exhibition is to raise the awareness of our people and stop the mass abandonment of houses and villages in Serbia.

It was planned to organize a scientific meeting on the occasion of the 180th birth anniversary of the first doctor of agricultural science, Dr. Djordje Radić, on 23 April. However, it was postponed due to the epidemiological situation. Thus, the exhibition “Dr Djordje Radić (1832-19229, Agricultural Educator and Scientist” (Dr Djordje Radić /1839-1922/ poljoprivredni prosvetitelj i naučnik) was staged at the SASA Gallery of Science and Technology, 23 September – 17 October 2020, and accompanied by the appropriate catalogue.

On 27 October 2020, in order to demonstrate support for numerous events taking place worldwide to mark the Year of Plant Health, the SASA organized a scientific expert meeting titled “Plant Health Protection” (Zaštita zdravlja biljaka) where eight papers were presented.

A scientific expert meeting on “The Importance of Livestock Raising for Food Production and Sustainable Rural Development” (Značaj stočarstva u proizvodnji hrane i održivom razvoju sela), which was to be held at the SASA on 24 November 2020, was postponed to next year due to the epidemiological situation.

A round-table meeting titled “Women in Serbian Villages” (Žene u selima u Srbiji) was prepared and planned to be held at the Scientific Research Centre in Kragujevac. However, due to the epidemiological situation, it had to be postponed to next year.

In cooperation with the Faculty of Agriculture in Novi Sad, the Committee actively cooperated in the organization of counselling about modern fruit and vegetable production.

The Committee’s extremely good cooperation with the Institute for the Application of Science in Agriculture and the Agricultural Advisory Expert

Service of the Republic of Serbia continued. The members of the Committee actively participate in the organization of the Annual Seminar titled “Apply Science – Respond to Challenges“ (Primenimo nauku – odgovorimo izazovima), which is the largest and most important gathering of agricultural advisory and professional services, which is held in December via webinar.

**ACADEMIC COMMITTEE FOR THE COMPILATION OF
THE BIOGRAPHIES OF PRESIDENTS OF THE SOCIETY OF
SERBIAN LETTERS – SSL, SERBIAN LEARNED SOCIETY
– SLS, SERBIAN ROYAL ACADEMY – SRA AND SERBIAN
ACADEMY OF SCIENCES AND ARTS – SASA**

(Academician Živorad Čeković)

The first and only session of the Committee was held on 25 February 2020 at which it was constituted and the methodology and conditions for publishing the *Presidents of SASA* (Predsednici SANU) Series were considered. The signatory of this report was elected as the President of the Committee and Academician Ljubodrag Dimić as its Vice-President. Due to an unfavourable epidemiological situation, a large part of the activities of the SASA and this Committee was suspended. At the time of its formation, the aim of the Committee was to publish the *Presidents of SASA* Series for the 180th anniversary of the Academy in 2021. In these circumstances, I first tried to list all presidents and institutions preceding the present-day SASA. In order to adjust the contents of biographies to the volume of manuscripts the detailed instructions for authors were prepared and distributed.

It is envisaged that each biography has 25-40 pages (and the Series itself 1,000-1,600 pages), which points to the need to publish the Series in two volumes.

DEPARTMENT OF TECHNICAL SCIENCES

Project: **DATABASES FOR MODELING OF SOURCES OF NON-EQUILIBRIUM PLASMAS AND THEIR APPLICATION IN BIOMEDICINE AND BIO-TECHNOLOGIES**

(Academician Lj. Zoran Petrović)

Experimental activities were made quite difficult in 2020. We continued work on Volt-Ampere characteristics and ionization coefficients for electrons in four different alcohols. We determined ionization coefficients from spatial emission profiles. We also worked on electron scattering cross-section sets in several gases. Four papers were published and two invited lectures were presented.

Puač M., Đorđević A., Petrović Z. Lj., 2020: Monte Carlo simulation of RF breakdown in oxygen – the role of attachment. **European Physical Journal D**, 74, 72. <https://doi.org/10.1140/epjd/e2020-100526-1>

Sivoš J., Marić D., Malović G., Petrović Z. Lj., 2020: Low-pressure DC breakdown in alcohol vapours. **European Physical Journal D**, 74, 64. <https://doi.org/10.1140/epjd/e2020-100540-3>

Simonović I., Bošnjaković D., Petrović Z. Lj., White R. D., Dujko S., 2020: Third-order transport coefficient tensor of electron swarms in noble gases? **European Physical Journal D**, 74, 63. <https://doi.org/10.1140/epjd/e2020-100574-y>

Simonović I., Bošnjaković, Petrović Z. Lj., Stokes P., White R. D., Dujko S., 2020: Third-order transport coefficient tensor of charged-particle swarms in electric and magnetic fields. **Physical Review E**, 101, 023203.

Project: **PROBLEMS OF FORMULATING AND SOLVING MATHEMATICAL MODELS OF MOTION AND STABILITY AND SHAPE OPTIMIZATION OF ELASTIC AND VISCO-ELASTIC RODS**

(Academician Teodor Atanacković)

During 2020 we worked on the problems of heat conduction and motion of viscoelastic bodies described by constitutive equations containing fractional derivatives of real and complex order.

We published the following papers:

1. Atanackovic T. M., Janev M., Pilipovic S., 2020: On the thermodynamical restrictions in isothermal deformations of fractional Burgers model. **Philosophical Transactions of the Royal Society A**, 37, 20190278.
2. Kacapor E., Atanackovic T. M., Dolicanin C., 2020: Optimal Shape and First integrals for Inverted Compressed Column. **Mathematics**, 8, No 3, 334.
3. Sarcev I., Petronijevic-Sarcev B., Krstonosic V., Janev M., Atanackovic T. M., 2020: Modeling the rheological properties of four commercially available composite core build-up materials. **Polymers and Polymer Composites**. <https://doi.org/10.1177/0967391120951365>
4. Atanackovic T. M., Pilipovic S., Selesi D., 2020: Wave Propagation Dynamics in a Fractional Zener model with Stochastic Excitation, **Fractional Calculus and Applied Analysis**, 23, No 6 (Dec. 2020), 35 pp. doi: 10.1515/fca-2020-0063
5. Atanackovic T. M., Janev M., Pilipovic S., D. Selesi, 2020: Viscoelasticity of fractional order: New restrictions on constitutive equations with applications. **International Journal of Structural Stability and Dynamics**, Vol. 20, No. 13, 2041011 (20 pages). doi: 10.1142/S0219455420410114
6. Our results were presented at the following Conference: T. M. Atanacković, “On the thermodynamical restrictions in isothermal deformations of fractional Burgers model”. **CPMMI 2020**, Novi Pazar 14–16 June 2020.

Project: **DEVELOPMENT OF MATERIALS AND STRUCTURES WITH STRONG ELECTRONIC CORRELATIONS**

(Academician Zoran V. Popović)

We studied the properties of new classes of materials with strongly correlated electrons. The research was primarily focused on the study of lattice dynamics, electron-phonon and spin-phonon interactions in $\text{CrSi}_{0.8}\text{Ge}_{0.1}\text{Te}_3$ [1], and VI_3 [2].

From experimental techniques, Raman spectroscopy was used primarily in a wide range of temperatures. Samples for this research were provided in cooperation with Dr. Čedomir Petrović from the Brookhaven National Laboratory (USA), a foreign member of the SASA.

The list of project-related papers published in 2020:

1. Milosavljević A., Šolajić A., Višić B., Opačić M., Pešić J., Liu Y., Petrovic C., Popović Z. V., Lazarević N., 2020: Vacancies and spin-phonon coupling in $\text{CrSi}_{0.8}\text{Ge}_{0.1}\text{Te}_3$. **Journal of Raman Spectroscopy**, 51, 2153–2160. doi: [10.1002/jrs.5962](https://doi.org/10.1002/jrs.5962)
2. Djurdjic Mijin S., Milinda Abeykoon A. M., Šolajić A., Milosavljević A., Pešić J., Liu Y., Petrovic C., Popović Z. V., Lazarević N., 2020: Short-Range Order in VI_3 . **Inorganic Chemistry**, 59, 16265–16271. DOI: 10.1021/acs.inorgchem.0c02060

3. Colson B., Fuentes V., Konstantinović Z., Colson D., Forget A., Lazarević N., Šćepanović M., Popović Z. V., Frontera C., Balcells LL, Martinez B., Pomar A., 2020: Self-assembled line network in BiFeO₃ thin films. **Journal of Magnetism and Magnetic Materials**, Volume 509, 1 September 2020, 166898.
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Project: NUMERICAL SIMULATION OF ELECTROMAGNETIC FIELDS

(Academician Antonije Đorđević)

A coaxial chamber for measurements of dielectric properties of ceramic samples of larger dimensions (diameters up to 25 mm) was designed and manufactured. The chamber was tested for measurements in the frequency range between 1 MHz and 3 GHz, and in the temperature range between the room temperature and 200 °C. All tests were performed successfully.

Software for the electrostatic numerical analysis of bodies of revolution was developed and tested. The accuracy of results for capacitances obtained by the software is better than 10^{-4} . The software is primarily intended for the identification of dielectric parameters of materials and it is adapted for measurements performed using the coaxial chamber.

The influence of various materials on the behavior of plasma was investigated. As liquid samples, distilled water and several kinds of media were used. The goal was to establish the total quantity of generated long-lived radicals (oxygen and nitrogen compounds) in the treated liquid sample and correlate these concentrations with the plasma parameters, like the power delivered to the plasma. A coaxial chamber for measurements of dielectric properties of ceramic samples of larger dimensions (diameters up to 25 mm) was designed and manufactured. The chamber was tested for measurements in the frequency range between 1 MHz and 3 GHz, and in the temperature range between the room temperature and 200 °C. All tests were performed successfully.

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late these concentrations with the plasma parameters, like the power delivered to the plasma.

Project: **MICRO- AND NANOSENSORS BASED ON RESONANT STRUCTURES OR RESISTANT THIN-LAYERED STRUCTURES AND ADSORPTION-DESORPTION PROCESSES**

(Academician Zoran Đurić)

We performed the research of chemical/biological adsorption desorption sensors, perovskite solar cells and photovoltaic energetics. Work on the problematics of chemical and biological sensors enabled the formation of the stochastic model of the time response of these types of sensors, which takes into consideration the interaction between the process of analyte adsorption and mass transfer process. As part of the work on other topics, photovoltaic energetics, a conceptual design of a laboratory for the characterization of power plants and solar cells parameters was prepared, within the SASA Institute of Technical Sciences

Djurić Z., Jokić I., 2020: Ideal Efficiency of Resonant Cavity Enhanced Perovskite Solar Cells. **Optical and Quantum Electronics**, 52, 230 (2020).

Project: **COMPUTATIONAL INTELLIGENCE TECHNIQUES IN TRANSPORTATION ENGINEERING**

(Academician Dušan Teodorović)

The most significant result of the research project is the book **“Quantitative Methods in Transportation”**, written by Dušan Teodorović and co-authored by Associate Professor Miloš Nikolić. The book was written in an attempt to be an important resource for professionals and students in transportation planning and engineering. The book was published in 2020 by CRC Press/Taylor & Francis.

The members of the research team continued their efforts to further improve the Bee Colony Optimization technique. In 2020, this technique was used for the development of the urban traffic control systems. The members of the project team developed the Multi-Criteria Model for traffic control at the isolated intersection. The developed model is based on the BCO technique, combined with the interactive approach. The obtained results are promising. Additionally, the preliminary user equilibrium algorithm for urban traffic networks was developed.

Project: **DEVELOPMENT OF SYSTEMS FOR ADVANCED
REHABILITATION OF PERSONS WITH DISABILITIES**

(Academician Dejan B. Popović)

The system for recording the kinematics of the feet and the ground reaction forces with sensors built into the insoles in the shoes that communicate wirelessly with the computer was considerably improved. A new way of monitoring the distribution of forces displayed on miniature monitors built into the spectacle frame was developed. This system is being tested as an enhancement of biological feedback in order to re-learn a walking patient.

The second part of the activity is the improvement of the EMG signal processing methodology. The results of the work are largely presented in the doctoral dissertation of Ivan Topalović, who defended his thesis at the Faculty of Electrical Engineering, University of Belgrade.

A part of the activity is related to the improvement of the model and the simulation of knee movements in the assessment of the patient's spasticity after a central nervous system injury. This paper is partially presented in a paper submitted for review in a journal ranked in group M21 at the end of 2020, whose first author is Antonina Aleksić, and the second author Dejan Popović, who is the mentor of Antonina Aleksić's doctoral dissertation at the ETF University of Belgrade.

Work on the modular electronic stimulator continued. The results are excellent, primarily owing to the engagement of Lana Popović Maneski. The result of this activity is the cooperation with a small company that could potentially distribute the stimulator around the world.

Lana Popović Maneski, Ph.D., Ivan Topalović, Ph.D., and Antonina Aleksić, a Ph.D. student, are employed at the SASA Institute of Technical Sciences.

Vendrame E., Popović D. B., Ambrosini E., Popović-Maneski L., 2020: A Rule-Based Control System for Assisting the Gait by multichannel Functional Electrical Stimulation: Design and Proof of Concept. **Proceedings. 7th IcETRAN**, Belgrade, Sep 2020. https://www.etrans.rs/2020/ETRAN/Zbornik_radova/

Gavrilović M., Popović D. B., 2020: bCyclograms Based on Principal Components for Assessing the Gait. Proc. **7th IcETRAN**, Belgrade, Sep. 2020, **Proceedings. 7th IcETRAN**, Belgrade, Sep 2020. https://www.etrans.rs/2020/ETRAN/Zbornik_radova/

Topalović I., Dedijer Dujović S., Konstantinović Lj., Popović D. B., 2020: Surface EMG for the Assessment of the Gait Performance in Hemiplegic Patients. **Proceedings. 7th IcETRAN**, Belgrade, Sep 2020. https://www.etrans.rs/2020/ETRAN/Zbornik_radova/

Project: **NANOSTRUCTURES UNDER ENVIRONMENTALLY
CONSTRAINED CONDITIONS**

(Corresponding Member Velimir Radmilović)

In 2020, our research was focused on: a) Size and shape control of rutile TiO_2 nanorod crystals for photocatalytic application, synthesized by peroxide-titanium complex (PTC) approach. These nanorods have high tendency for agglomeration through orientation dependent attachment along $\{\bar{1}\bar{1}0\}$ facets, increasing ratio of oxidative $\{111\}$ /reductive $\{110\}$ surfaces, exhibiting enhanced photocatalytic activity; b) Design, synthesis, and characterization of a mesoporous composite system consisting of carbon fiber cores surrounded with $\text{Co}_{1.5}\text{Mn}_{1.5}\text{O}_4$ spinel nanocrystal shells, synthesized by a simple two-step process involving single-nozzle co-electrospinning and subsequent calcination. This composite electrode has exhibited high specific capacitance in the two-electrode configuration, up to 384 F g^{-1} at 0.28 A g^{-1} , with no capacitance loss after 2000 cycles at 50 mV s^{-1} . c) Adsorption kinetics, equilibrium, and thermodynamics of Cu^{2+} in geopolymer alkali solutions.

Djokić V. R., Marinković A. D., Petrović R. D., Ersen O., Zafeiratos S., Mitrić M., Ophus C., Radmilović V. R., Janačković Dj. T., 2020: Highly active rutile TiO_2 nanocrystalline photocatalysts. **ACS Applied Materials and Interfaces**, 12, 33058–33068. doi: 10.1021/acsami.0c03150

Mijailović D. M., Radmilović V. V., Lačnjevac U. Č., Jović V. D., Radmilović V. R., Uskoković R. S., 2020: Core-shell carbon fiber@ $\text{Co}_{1.5}\text{Mn}_{1.5}\text{O}_4$ mesoporous spinel electrode for high performance symmetrical supercapacitors. **Applied Surface Science**, 534, 147678. doi: 10.1016/j.apsusc.2020.147678

Nikolić I., Đurović D., Tadić M., Radmilović V. V., Janković-Častvan I., Radmilović V. R., 2020: Adsorption kinetics, equilibrium, and thermodynamics of Cu^{2+} on pristine and alkali activated steel slag. **Chemical Engineering Communications**, 207, 12783–12974. doi: 10.1080/00986445.2019.168598

Nikolić I., Đurović D., Marković S., Veselinović L., Janković-Častvan I., Radmilović V. V., Radmilović V. R., 2020: Alkali activated slag cement doped with Zn-rich electric arc furnace dust. **Journal of Materials Research and Technology**, 9, 12783–12794. doi: 10.1016/j.jmrt.2020.09.024

Project: **EFFICIENCY IMPROVEMENT IN WIND POWER PLANTS**

(Corresponding Member Slobodan N. Vukosavić)

The efficiency of wind power plants depends on energy losses within the electric generator. Conflicting design requirements can be solved by design optimization, based on the search in parametric space with several tens of

dimensions. Design criteria get evaluated at each point, and the outcomes are used to drive further steps of the quest. Gradient search in multi-dimensional space is exceptionally slow. The application of differential evolution with active mutation and recombination management enables significant acceleration of search and resolves the problems of local optimums. Transformation and reduction of FEM models accelerates calculations in each step of the search and makes the proper design-optimization feasible [1]. An eligible candidate for wind-power generators are SRM machines [2]. Papers [3] and [4] are dedicated to on-line estimation of parameters and states of induction and synchronous machines with permanent magnets.

Lekic Dj., Vukosavić S., 2020: Computationally Efficient Steady-State Finite Element Simulation of Multiphase PM AC Machines.” **IET Electric Power Applications**, vol. 14, no. 7, 1228–1237, March 2020.

Mihic D. S., Terzic M. V., Brkovic B. M., Vukosavić S. N., 2020: A novel modular power converter for SRM drive. **Electrical Engineering**, vol. 102, no. 2, 921–937, June 2020.

Petrić I., Vukosavić S. N., 2020: High-performance speed estimation of induction machines based on adaptive filtering.“ **IET Electric Power Applications**, vol. 14, no. 4, pp. 695–704, April 2020.

Yi B., Vukosavic S. N., Ortega R., Stankovic A. M., Zhang W. , 2020: A New Signal Injection-based Method for Estimation of Position in Salient Permanent Magnet Synchronous Motors. **IET Power Electronics**, vol. 13, no. 9, 1865–1874, July 2020.

Project: **DEVELOPMENT OF TECHNOLOGICAL PROCEDURES FOR BIODIESEL PRODUCTION FROM BIORENEWABLE AND WASTE RAW MATERIALS**

(Corresponding Member Vlada Veljković)

Research in 2020 included kinetics, thermodynamics, and optimization of the extraction process and characterization of corn germ oil, as well as the development and optimization of biodiesel production using bio-renewable, natural, and waste raw materials (corn germ, white mustard, and sunflower oil, waste lard, fly ash, eggshells, and sludge). The results of the conducted research served as a basis for defining the procedure for obtaining biodiesel at the laboratory level from sunflower oil and carbonation sludge as a catalyst. During 2020, four papers were published in international journals and two papers at international scientific conferences, and one technical solution was recognized. Also, a monograph, a scientific book, and a national patent were published. The research in 2020 included kinetics, thermodynamics, and

optimization of the extraction process and characterization of corn germ oil, as well as the development and optimization of biodiesel production using bio-renewable, natural, and waste raw materials (corn germ, white mustard, and sunflower oil, waste lard, fly ash, eggshells, and sludge). The results of the conducted research served as the basis for defining the procedure for obtaining biodiesel at the laboratory level from sunflower oil and carbonation sludge as a catalyst. During 2020, four papers were published in international journals and two papers at international scientific conferences, and one technical solution was recognized. Also, a monograph, a scientific book, and a national patent were published.

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1. Stamenković O. S., Siliveru K., Veljković V. B., Banković-Ilić I. B., Tasić M. B., Ciampitti I. A., Đalović I. G., Mitrović P. M., Sikora V. Š., Vara Prasad P. V., 2000: Production of biofuels from sorghum. **Renewable and Sustainable Energy Review**, 124, 109769. <https://doi.org/10.1016/j.rser.2020.109769>
 2. Mitrović P. M., Stamenković O. S., Banković-Ilić I. B., Djalović I. G., Nježić Z. B., Farooq M., Siddique K. H. M., Veljković V. B., 2020: White mustard (*Sinapis alba* L.) oil in biodiesel production: a review. **Frontiers in Plant Science**, 11, 299. <https://doi.org/10.3389/fpls.2020.00299>.
 3. Pavlović S. M., Marinković D. M., Kostić M. D., Janković-Častvan I. M., Mojović L. V., Stanković M. V., Veljković V. B., 2020: A CaO/zeolite-based catalyst obtained from waste chicken eggshell and coal fly ash for biodiesel production. **Fuel**, 267, 117171. <https://doi.org/10.1016/j.fuel.2020.117171>
 4. Stamenković O. S., Kostić M. D., Tasić M. B., Djalović I. G., Mitrović P. M., Biberdžić M. O., Veljković V. B., 2020: Kinetic, thermodynamic and optimization study of the corn germ oil extraction process. **Food and Bioproducts Processing**, 120, 91–103. <https://doi.org/10.1016/j.fbp.2019.12.013>.
 5. Stojković I., Miladinović M. R., Stamenković O. S., Banković-Ilić I. B., Povrenović D. S., Veljković V. B., 2020: A comparison of the methanolysis of vegetable oils and fats over homogeneous and heterogeneous catalysts, **International Conference “XIII Conference of Chemists, Technologists and Ecologists of the Republic of Srpska”**, online, **Book of Abstracts**, 71, 30. 10. 2020, Banja Luka, Republic of Srpska, Bosnia and Herzegovina.
 6. Stamenković O., Kostić M., Veljković V., 2020: Biodiesel production from cherry (*Prunus cerasus* L.) kernel oil. **33. International Congress on Process Industry - PROCESSING 2020, Book of Abstracts**, 29, 10. 09. 2020, Belgrade, Serbia.
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**ACADEMIC COMMITTEE ON THE NATURAL
AND TECHNICAL-TECHNOLOGICAL RESOURCES
OF SERBIA**

(Academician Zoran Đurić)

The work plan for 2020 included the promotion of the seminal work in the field of water – “Alluvial Aquifer Processes”, whose editor and author with associates was Prof. M. A. Dimkić from the Jaroslav Černi Institute. The promotion was to be held at SASA. Unfortunately, prof. Dimkić passed away in November 2020 and the promotion was not held. Known problems with the epidemic made it impossible for the promotion to be scheduled for 2021 so far, but consultations with the associates of the Jaroslav Černi Institute will be held soon and possibilities will be considered either this year or possibly next year.

The planned work in the field of photovoltaic energy was performed mainly at the SASA Institute of Technical Sciences. Special attention was paid to the law on renewable energy sources. In the initial form of that law, the scientific community did not appear anywhere as an important participant in the realization of renewable sources programs. We used the opportunity, when the law was under public discussion, to propose that our science be included in the programs of renewable sources and that attention be paid to the education of staff who are deficient in this important area of the economy. Our proposal was included in the Law on Renewable Energy Sources.

ACADEMIC COMMITTEE FOR ENERGY

(Corresponding Member Slobodan N. Vukosavić)

During 2020, the Committee organized meetings, lectures, gatherings and exhibitions dedicated to the key energy development issues. One should single out a scientific meeting on nuclear energy and an exhibition dedicated to Serbian scientists in power electronics. Domestic and foreign lecturers spoke about global changes in the field of energy as well as about Serbia’s serious and multifaceted energy problems. It was also pointed out that Serbia’s electric power industry supplies consumers with electricity that relies heavily on fossil fuels. More than two-thirds of electricity are produced by coal-fired thermal power plants. According to the conclusions of the meeting, it is possible to significantly reduce reliance on coal over the next 15–20 years, which will result in the shutdown of all coal-fired thermal power plants in 20–30 years.

In the countries with a similar energy structure it is planned to replace coal-fired thermal power plants with other sources of energy. Apart from the efforts to increase energy efficiency, the search for an optimal energy mix also includes renewable energy sources, natural gas-fired power plants (as a transitional solution) and the construction of new or the upgrading of existing nuclear power plants.

The meeting on nuclear energy was organized with an aim to revive and increase the knowledge needed for qualified thinking and deciding on the development directions of the Serbian energy sector. The widespread practice of making short-term, interest-motivated and unfounded decisions and policies is in direct conflict with the long-term nature of energy systems and the electric power industry. The meeting was held on 2 November 2020 and its participants were the members of the SASA, representatives of the International Atomic Energy Agency, representatives of the neighbouring countries that have nuclear power plants in their territory, leading American researchers and a number of domestic scientists and experts.

The discussion on nuclear energy was aimed at analyzing the effects and risks associated with nuclear power plants already operating in the surroundings, as well as assessing the effects and risks of the potential use of nuclear power plants in Serbia. The discussion attracted a large number of participants who made a very significant contribution with their comments, observations and proposals. The outcomes and conclusions will be published in the form of proceedings in 2021.

The SASA Committee set up a website, containing the programmes, relevant information and notifications, abstracts and transcripts of lectures, conclusions and recommendations of meetings and round tables and the like. An effort was made to adjust the form and elements to the SASA website. The website of the SASA Committee for Energy is accessible at the following address: <http://www.odborzaenergetiku.iz.rs/>, where it will remain until being transferred to a permanent location within the appropriate SASA website and server.

DEPARTMENT OF MEDICAL SCIENCES

Project: PATHOLOGIC MORPHOLOGY AND MORPHOLOGIC-CLINICAL CORRELATIONS IN CARDIOVASCULAR DISEASES (INCLUDING HISTORICAL ASPECTS)

(Academician Vladimir Kanjuh)

With 31 multidisciplinary associates, the following was published in 2020: 36 bibliographic units, of which: 2 co-editors in: the SASA book about academician Vladan Đorđević and in the Scientific monograph of V. Lačković's "Histology and embryology of the cardiovascular and lymphatic vascular system – clinical significance" (+ 8 papers); 26 scientific papers (including 16 in scientific monographs and postgraduate textbook); three reviews and promotions of scientific monographs and postgraduate textbook in Serbia, Republic of Srpska and Montenegro; one on the analysis of quizzes on morphological and clinical correlations in cardiology; 2 annual reports of the SASA Board on Cardiovascular Pathology, one interview (reprint) on the occasion of Denton Cooley's death, and one commentary on the Jubilee on the occasion of the 100th issue of journal Medici.com (Banja Luka, Republic of Srpska). Sixteen bibliographic units were printed in Serbia and 20 abroad (R. of Srpska, MN). V. K. was the first author in the 19 papers. He also gave one lecture online in the SASA Department of Medical Sciences.

The following issues were examined: pathological morphology (autopsy + histopathology) of SARS-CoV-2 → COVID-19 and Ebola; histology and histopathology of normal and pathological structures of the heart; vascular endothelium in connection with thrombosis and thromboembolism (clinical and pharmacological research); atherosclerosis (general review, coronary, abdominal aorta – aneurysm and accelerated in smokers); congenital heart defects in children and adults; conception of F. Torrent Guasp on the ventricular myocardium as an open helical myocardial band between the roots of the pulmonary artery and the aorta; pericardial diseases; revitalization of clinical

autopsies II; history of Serbian medicine – 6 works about academician Vladan Đorđević.

In addition to the stated Project, there is also a joint SASA and MASA Project of V. Kanjuh, G. Stanković and S. Kedev “Athero-thrombotic obstruction and stenting of bifurcations of coronary arteries”.

Kanjuh V., Čolović R., Radojević M., Delić J. (Editors), 2020: **Vladan Djordjević on the occasion of one hundred and seventy-six years since his birth** (Proceedings). Edit. SASA. Scientific conferences, Book CLXXXIX, Presidency Book, 14. Belgrade.

Čolović R., Kanjuh V., 2020: Academician Vladan Djordjević: Life, Work, Times (1844 - 1930). Pp 13–56. In the book “**Vladan Djordjević Life, Work, Times**”. Edit Serbian Academy of Sciences and Arts, Editor R. Čolović, Belgrade.

Lačković V. et al., 2020: Scientific monograph **Histology and embryology of the cardiovascular and lymphatic vascular system - clinical significance**. Editors Kanjuh V. (and co-author of 8 chapters) and Todorović V. (and co-author of 14 chapters), MASA, CCMN. Podgorica.

Kanjuh V., Lončar Z., 2020: Pleas for the revitalization of clinical autopsies. Second part: Number of autopsied patients in relationship to the number of dead one in health care institutions and the degree of (dis) agreement of clinical and autopsy diagnoses in 2001 in Belgrade and 2018 in Serbia. **Medici.com** (Banja Luka, RS), XVII (97), 82–87.

Kanjuh V., Kočica M., Lačković V., Teofilovski Parapid G., Antonijević N., Kanjuh S., 2020: Conception of Francisco (“Paco”) Torrent-Guasp about the ventricular myocardium as an open helicoid ventricular myocardial band between the roots of pulmonary artery and aorta in 2020 year. **Medici.com** (Banja Luka, RS), XVI (98), 74–81.

Kanjuh V., Kanjuh S., Pušac M., 2020: SARS-CoV-2 → COVID-19. The role and contribution of pathologists in the research of etio-pathogenesis and pathomorphological substrate of disease (autopsy, histo-pathology and electron microscopy) (X interactive educational quiz). **Medici.com** (Banjaluka, RS), XVII (99), 66–75. The work is on the websites of SASA, the Association of Cardiologists of B&H and the Association of Cardiologists of Republic of Srpska.

Kanjuh V., Kanjuh S., Zdravković M., Pušac M., 2020: The characteristics of viruses. Disease due to Ebola virus (Ebola hemorrhagic fever) – one of the most deadly diseases of humanity (General review). **Medici.com** (Banjaluka, RS), XVII (100), 66–71.

Janković G., Marinko M., Milojević P., Stojanović I., Nenezic D., Kanjuh V., Yang Q., He G. W., Novaković A., 2020: Mechanisms of endothelium-dependent vasorelaxation induced by procyanidin B2 in venous bypass graft. **Journal of Pharmacological Sciences**, 142 (3), 101–108.

Antonijević N. M., Gošnjić N. D., Ranković I. V., Jovanović Lj. M., Veljić I. D., Matić D. M., Kočica M. J., Karadžić Kočica M. M., Terzić B. M., Leković Ž. V., Jelić D. D., Kanjuh V. I., 2020: Complexities of oral antiplatelet drugs use in pregnancy. **Hospital Pharmacology** (Beograd), 7 (2), 903–912.

Antonijević N., Kanjuh V., Živković I., Jovanović Lj., Vukčević M., Apostolović M., 2020: Prevention of venous thromboembolism with rivaroxaban and apixaban in orthopedic surgery. **Srpski arhiv za celokupno lekarstvo**, 148 (9-10),613–620.

Burazor I., Simić D., Giga V., Nedeljković M. A., Vulić D., Tasić I., Kanjuh S., Kanjuh V., 2020: Risk reduction of atherosclerotic cardiovascular disease through triglycerides management: Case report. **Srce i krvni sudovi** (Beograd), 39 (1), 11–14.

Project: **EXPRESSION OF THE NEOPLASTIC PROGRAMME OF THE CELL**

(Academician Zoran Kovačević)

Theoretical work on the project focused on the study of connection of the process of aging with chronic diseases, particularly malignant alteration, from the aspect of complex system thinking in biomedical sciences.

In relation to this topic the following paper was published:

Kovačević L. Z., 2020: Synthetic biology – the way to understand biological complexity. **Annals of the branch of SANU in Novi Sad**. 15, 9–12.

Project: **ESTIMATION OF INFARCT SIZE USING TRANSTHORACIC DOPPLER ECHOCARDIOGRAPHIC MEASUREMENT OF CORONARY FLOW RESERVE IN INFARCT RELATED AND REFERENCE CORONARY ARTERY**

(Academician Miodrag Ostojić)

The coronary chronic total occlusion (CTO) is characterized by the presence of collateral blood vessels which can provide additional blood supply to CTO-artery dependent myocardium. Successful CTO recanalization is followed by a significant decrease in collateral donor artery blood flow and collateral derecruitment, but data on coronary hemodynamic changes in relation to myocardial function are limited. We assessed changes in the coronary flow velocity reserve (CFVR) by echocardiography in collateral donor and recanalized artery following successful opening of coronary CTO.

The results of currently available trials have shown divergent outcomes in diabetic patients undergoing percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG). Current guidelines do not recommend PCI in patients with diabetes and a SYNTAX score ≥ 23 . Aim: to compare all-cause 4-year mortality after revascularization for complex coronary artery disease (CAD) in diabetics. Out of 342 diabetics, 177 patients under-

went PCI and 165 patients were referred to CABG. The incidence of all-cause death was different between diabetics treated with PCI or CABG at 4 years (16/177, 9.0% vs. 26/165, 15.8%, respectively, $p = 0.03$).

Diabetes mellitus is an independent risk factor for stroke and atrial fibrillation. Therefore, the risk/benefit profile of the oral factor Xa inhibitor edoxaban stratified by diabetes is of clinical interest. 21,105 patients enrolled in ENGAGE AF-TIMI, 48 were stratified into 2 pre-specified groups: without (N = 13,481) and with diabetes (N = 7,624). On average, patients with diabetes were younger, and had a higher body mass index, CHA2DS2-VASc score and baseline endogenous Factor Xa activity. After multivariate adjustments, patients with diabetes had a similar rate of stroke and systemic embolism compared to those without diabetes (adjusted hazard ratio (HR_{adj}) 1.08; 95% confidence interval (CI) 0.94–1.24; $p = 0.28$).

1. Dobric M., Beleslin B., Tesic M., ..., Ostojic M., 2020: Prompt and consistent improvement of coronary flow velocity reserve following successful recanalization of the coronary chronic total occlusion in patients with viable myocardium. **Cardiovascular Ultrasound**, 2020 Jul 21; 18 (1), 29. doi: 10.1186/s12947-020-00211-4. PMID: 32693812 Free PMC article.
2. Scali M. C., Zagatina A., Ciampi Q., ..., Ostojic M., ..., Picano E.; Stress Echo 2020 Study Group of the Italian Society of Echocardiography and Cardiovascular Imaging, 2020: Lung Ultrasound and Pulmonary Congestion During Stress Echocardiography. **JACC: Cardiovascular Imaging**, 2020 Oct; 13 (10), 2085–2095. doi: 10.1016/j.jcmg.2020.04.020. Epub 2020 Jul 15. PMID: 32682714.
3. Bombardini T., Zagatina A., Ciampi Q., ..., Ostojic M., ..., Picano E.; Stress Echo 2020 study group of the Italian Society of Echocardiography and Cardiovascular Imaging, 2020: Feasibility and value of two-dimensional volumetric stress echocardiography. **Minerva Cardioangiologica**, 2020 Jul 10. doi: 10.23736/S0026-4725.20.05304-9. Online ahead of print. PMID: 32657562.
4. Stanetic B. M., Ostojic M., Kovacevic-Preradovic T., Kos L., Stanetic K., Nikolic A., Bojic M., Huber K., 2020: ApPropRiateness of myocardial revascularization assessed by SYNTAX Scores in patients with type 2 diabetes mellitus: the PROUST study. **Postępy w Kardiologii Interwencyjnej**, 2020 Jun; 16 (2), 153–161. doi: 10.5114/aic.2020.96058. Epub 2020 Jun 23. PMID: 32636899 Free PMC article.
5. Petrovic M. T., Djordjevic-Dikic A., Giga V., ..., Ostojic M. C., Beleslin B., Picano E., 2020: The Coronary Arteriogenesis with combined Heparin and Exercise therapy in chronic refractory Angina (CARHEXA) trial: A double-blind, randomized, placebo-controlled stress echocardiographic study. **European Journal of Preventive Cardiology**, 2020 Apr 8, 2047487320915661. doi: 10.1177/2047487320915661. Online ahead of print. PMID: 32268801.
6. Bombardini T., Cortigiani L., Ciampi Q., Ostojic M. C., Kovacevic-Preradovic T., Picano E., 2020: The prognostic value of stroke work/end-diastolic volume ratio during stress echocardiography. **Acta Cardiologica**, 2020 Apr 1: 1–12. doi: 10.1080/00015385.2020.1746054. Online ahead of print. PMID: 32233739.

7. Plitt A., Ruff C. T., Goudev A., Morais J., Ostojic M. C., Grosso M. A., Lanz H. J., Park J. G., Antman E. M., Braunwald E., Giugliano R. P., 2020: Efficacy and safety of edoxaban in patients with diabetes mellitus in the ENGAGE AF-TIMI 48 trial. **International Journal of Cardiology**, 2020 Apr 1; 304, 185–191. doi: 10.1016/j.ijcard.2020.01.009. Epub 2020 Jan 31. PMID: 32008850.
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Project: **RESEARCH ON PROGRESSION AND HETEROGENIC PHENOTYPIC EXPRESSION OF PARKINSON DISEASE**

(Academician Vladimir S. Kostić)

Our research was mainly devoted to entities from the group of atypical parkinsonism (multiple system atrophy, progressive supranuclear palsy). Initial results on functional movement disorders and DOPA-responsive dystonia (DRD) were obtained and published, where, according to our insight in the literature, we have shown for the first time that DRD was not exclusively due to a neurotransmitter (dopamine) deficit. A particular focus was on cognitive changes in Parkinson disease and in atypical parkinsonism, where we tried to correlate morpho-functional changes with the pattern of a cognitive decline.

1. Tomić A., Ječmenica Lukić M., Petrović I., Svetel M., Dragašević Mišković N., Kresojević N., Marković V., Kostić V. S., 2020: Changes of phenotypic pattern in functional movement disorders: A prospective cohort study. **Frontiers in Neurology**, 11, 582215. doi: 10.3389/fneur.2020.582215
2. Kostić V. S., Agosta F., Tomic A., Sarasso E., Kresojevic N., Basaia S., Svetel M., Copetti M., Filippi M., 2020: Brain structural alterations in patients with *GCH1* mutations associated DOPA-responsive dystonia. **Journal of Neurology, Neurosurgery, and Psychiatry**, 2020.:jnnp-2020-324535. doi: 10.1136/jnnp-2020-32453
3. Filippi M., Canu E., Donzuso G., Stojkovic T., Basaia S., Stankovic I., Tomic A., Markovic V., Petrovic I., Stefanova E., Kostic V. S., Agosta F., 2020: Tracking cortical changes throughout cognitive decline in Parkinson disease. **Movement Disorders**, 35 (11), 1987–1998. doi: 10.1002/mds.28228
4. Canu E., Agosta F., Tomic A., Sarasso E., Petrovic .I, Piramide N., Svetel M., Inuggi A. D., Miskovic N., Kostic V. S., Filippi M., 2020: Breakdown of the affective-cognitive network in functional dystonia. **Human Brain Mapping**, 241 (11), 3059–3076. doi: 10.1002/hbm.24997
5. Kresojević N., Mandić-Stojmenović G., Dobričić V., Petrović I., Brajković L., Stefanova E., Svetel M., Kostić V., 2020: Very-late Niemann-Pick type C disease: example of Progressive Supranuclear Palsy look-alike disord. **Movement Disorders Clinical Practice**, 7 (2), 211–214. doi: 10.1002/mdc3.12892
6. Marković V., Stanković I., Petrović I, Stojković T., Dragašević-Mišković N., Radovanović S., Svetel M., Stefanova E., Kostić V., 2020: Dynamics of impulsive-compulsive behaviors in early Parkinson disease: a prospective study. **Journal of Neurology**, 267 (4), 1127–1136. doi: 10.1007/s00415-019-09692-4

7. Caso F., Canu E., Lukic M. J., Petrovic I. N., Fontana A., Nikolic I., Kostic V. S., Filippi M., Agosta F., 2020: Cognitive impairment and structural brain damage in multiple system atrophy-parkinsonian variant. **Journal of Neurology**, 267 (1), 87–94. doi: 10.1007/s00415-019-09555-y
 8. Radovanović S., Vodopić S., Stanković I., Dragašević-Mišković N., Kostić V., 2020: Spatiotemporal gait characteristics of Huntington disease during dual-task walking. **International Journal of Neuroscience**, 130 (2), 136–143. doi: 10.1080/00207454.2019.1667781
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Project: **ULTRASTRUCTURAL CHARACTERISTICS OF CELLS
AND TISSUES IN METABOLIC DISTURBANCES**

(Academician Vladimir Bumbaširević)

In 2020, the investigations on animal model for type 2 diabetes mellitus and metabolic syndrome were continued, using C57BL/6J mice on a high fat diet (HFD) treated with simvastatin. Ultrastructural morphometric analysis of autophagic structures in liver cells of mice on HFD demonstrated increased level of mitophages in hepatocytes, as well as, increased number of autophagic vacuoles as a consequence of blockade of late autophagy stages. The treatment by simvastatin diminished number of mitophages in hepatocytes without effect on existing blockade of late autophagy stages. These results are being prepared for publication.

Project: **IMMUNOREGULATORY MECHANISMS IN HEALTH
AND DISEASE**

(Academician Miodrag Čolić)

Within this project, which is financed from the SASA Fund for Research in Science and Art, investigations continued in order to examine the modulatory effect of nanomaterials and biomaterials (nanocelluloses, gold nanoparticles, bioregenerative cements and complex gold and boron nanoparticles) on the function of dendritic cells, myeloid suppressor cells, regulatory T lymphocytes, granulocytes and other cells of the immune system. The results could be translated to the clinical medicine including contrast diagnostics, immunotherapy of tumors and autoimmune diseases, regenerative medicine and nanotheranostics. Five papers were published in their entirety in international journals and one book chapter on nanomaterials was published by the SASA.

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Project: **CONTROL ENDOCRINE MECHANISMS IN BODY WEIGHT REGULATION AMONG OBESE SUBJECTS**

(Academician Dragan Micić)

In 2020 some of the planned examinations concerning endocrine disorders in obese subjects were performed. The effects of bariatric surgery five years after the operation were analysed and were published in an international journal. The project head participated in publishing consensus on: cardiovascular, renal and liver protection with novel antidiabetic agents beyond blood glucose of the European Society of Hypertension Working Group on Obesity, Diabetes and the High-risk Patient. Also examined was the association between obesity and diabetes; therapy of Type 2 diabetes in obesity; diabetes and bone and the importance of the amount of weight loss after metabolic surgery. The results were published in two international journals and four international proceedings. The project head delivered three invited lectures (one at a European congress and two at international meetings).

The implementation of the program task accepted for the project proposal is planned to continue in 2021. The effect of obesity on the bone quality in patients with chronic autoimmune thyroiditis will be analysed. A possible interrelation between obesity and quality of life and mental status will be part of the analysis. The influence of obesity on the course and prognosis of the covid infection will be separately analysed. It is also planned to examine the effect of metabolic surgery among women.

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Project: **PROSTATE CANCER SCREENING**

(Academician Jovan Hadži-Đokić)

The Committee modified the objectives of the Prostate Cancer Screening Project according to the latest recommendations of the American Urological Association (AUA) for 2014.

During the last decade, extensive PSA-based prostate cancer (PCa) screening had at least two negative effects:

1. An unreasonably great number of prostate biopsies, due to elevated PSA which was the consequence of benign prostate hyperplasia (BPH) but not PCa,
2. Detection of a large number of small, insignificant PCa, in the stage when their treatment is unnecessary.

The Committee accepted the AUA 2014 recommendations that mandatory PSA-based screening should be performed only among men aged 55 to 69. In addition, men younger than 55 should be tested only if they have a family risk for prostate cancer development.

In accordance with these recommendations, three groups of subjects, aged 55 to 69 years, were formed:

1. Men with abnormal digital rectal examination (DRE) of the prostate
2. Men with elevated PSA (PSA \geq 2.5 ng/mL)
3. Men with abnormal DRE and PSA \geq 2.5 ng/mL

All of these men would be candidates for TRUS-guided prostate biopsy. Some patients with proven prostate cancer would be candidates for radical prostate surgery. After the surgery, the definitive pathological tumor stage should be assessed. In the processing phase, the specificity and sensitivity of each method in the diagnosis of prostate cancer would be compared. Also, the percentage of “insignificant” tumors would be compared in the four groups.

The intention of the Committee is that the project should be carried out in several towns in Serbia, according to strict criteria.

During 2020, cooperation with KO Urology, KBC “Zvezdara” in Belgrade, was intensified. Also, the screening of prostate cancer started in the Belgrade municipality of Vračar.

Also, associates on the project cooperated with almost all urological departments in Serbia.

Within this project, papers were published and are presented in the section on the work of the Committee for Urogenital Tumors.

Project: **HISTORY OF SERBIAN MEDICINE**

(Academician Radoje Čolović)

Dr. Radoje Čolović is the President of the Committee for Marking the 176th Birth Anniversary of Academician Vladan Đorđević, the editor of the book “Vladan Đorđević, Life, Work, Time (1844–1930)” (“Vladan Đorđević. Život, delo vreme (1844–1930)”) and the editor of its English translation. He is also one of the editors of the book “Vladan Đorđević. On the Occasion of His 176th Birth Anniversary” (“Vladan Đorđević. Povodom sto sedamdeset šest godina od rođenja”), Belgrade: Serbian Academy of Sciences and Arts, 2020.

He is a Matica Srpska associate on the compilation of the *Serbian Bibliographical Dictionary (Srpski biografski rečnik)* and *Serbian Encyclopedia (Srpska enciklopedija)*, where he is a member of the editorial staff specializing in medicine, dentistry and veterinary medicine and for which he wrote five texts that will be published in the next volume.

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Project: **FETOPLACENTAL DEVELOPMENT IN PREGNANCY
FOLLOWING ASSISTED REPRODUCTION**

(Academician Nebojša Radunović)

In order to promote reproductive health and monitor prenatal development, in 2020 the study of myometrial contractility of mothers who conceived with the help of assisted reproductive technologies and mothers who conceived spontaneously continued. In parallel, pharmacological experiments were performed to examine the inhibitory effect of natural polyphenols on the contractility of the myometrium. These studies are still ongoing and need to be continued through a project within the SASA “Study of fetoplacental development in pregnancy caused by assisted reproduction”, led by academician Nebojša Radunović. At the same time, in 2020, the cooperation with the Laboratory for Neurophysiology, Institute of Medical Physiology “Richard Burian” of the Medical Faculty, University of Belgrade continued. With the help of a test cage, a test of the motivational behavior of small animals is performed. The motivation behavior test is performed in a specifically designed arena. Motivational and instinctive behavior of small experimental animals related to reproduction and nutrition is assessed by monitoring their behavior in the open field arena by exposing them to an appropriate stimulus (food, receptive female, etc.). This test allows the assessment of different parameters of instinctual and motivational behavior in rodents. Therefore, the test is important for examining the reproductive behavior of rodents. Animal models for examining instinctive behavior are, among other things, suitable for studying polycystic ovary syndrome, chronic pelvic pain syndrome and others. The new epidemiological situation, caused by the Covid-19 pandemic, completely

changed the scientific research work during 2020. Most of the collaborators had a negative experience and contracted the Covid-19 virus. In addition, the pandemic slowed down and stopped the procurement of animals, the procurement and delivery of substances, and suspended the workers needed for the performance of experiments. Papers with motivational cages are planned at all levels of medical education: student papers, graduate theses and papers within doctoral theses, all with the aim of publishing papers in extenso as well as announcing the results at national and international conferences.

**Project: PLAQUE TEXTURE ELECTRONIC ANALYSIS IN
PREVENTION AND TREATMENT OF RESTENOSIS FOLLOWING
CAROTID ENDARTERECTOMY**

(Academician Đorđe Radak)

This year the *Delphi consensus expert panel* was founded. Our project group contributed to the *Delphi consensus study* dealing with the clinical response to the procedural stroke following carotid endarterectomy and the results will be published in the *European Journal of Vascular and Endovascular Surgery*.

Big multicentric multinational randomized controlled trials were designed and conducted; however, in order to address some questions, a big data approach is necessary. The aim of our Carotid Database is the prospective survey of the results and the contributing comorbidity and risk factors.

The results of best medical treatment, stenting and surgery are analyzed and compared. We are following: demographic data, risk factors, laboratory findings, previous medications, as well as all the details regarding diagnostic (ultrasound, CT angiography) and details of interventions. The mean follow-up is 5.2 years, with clinical and ultrasound examination every 6 months. By analyzing follow-up results, any specific details of the intervention, risk factor or comorbidity influencing early and late outcome of carotid disease treatment can be detected and cross-linked.

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**Project: INDICATORS OF THE PROCESS
OF TRANSINSTITUTIONALISATION – FROM PSYCHIATRIC
HOSPITALS TO PRISON INSTITUTIONS**

(Academician Dušica Lečić-Toševski)

In the second half of the XX century a need for reform of mental health care became important. The aim of the reform was a deinstitutionalisation of chronically mentally ill patients and their reintegration into society. The aim of the reform was a deinstitutionalisation of persons with chronic mental disorders and their reintegration into society. The long term institutional care was changed to a short term hospitalisation, mostly on psychiatric departments of general hospitals. Mental health services in community with supporting housing have a role to take place of long term hospitalisation and offer treatment and rehabilitation in places of residence, in a continuous collaboration with the community. The aim is a care of equal rights of each person, notwithstanding of circumstances and health status, as well as equal access to civil, political, social and economic opportunities.

However, there is still a dilemma whether the deinstitutionalisation, accepted with a great enthusiasm, especially in developed countries, was useful or caused many problems. Studies are aiming to investigate whether the reduction of psychiatric beds causes increase of rate of prison population and whether a process of transinstitutionalisation of mentally ill persons is taking place. While a global trend of reduction of psychiatric beds is continuing in western countries, there is still not an international consensus about the minimal number of psychiatric beds necessary to meet needs of society and prevent the process of transinstitutionalisation.

This study is a part of an international, multicentric research of mental health care in East Europe.

Method: Retrospective analytic study in which number of psychiatric beds, including the number of forensic psychiatric beds and prison population rate will be collected for the period of the last 20 years, for each year separately.

During 2020 data were collected from 48 mental health care institutions in Serbia. A doctoral dissertation of a collaborator in the study is a part of this study.

Principal investigator of the Serbian study participated in the research project - *Estimating the required number of psychiatric beds: a study protocol for reaching expert consensus using a Delphi process.*

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Project: SIGNIFICANCE OF ANTIREFLUX SURGERY AFTER THE ENDOSCOPIC RADIO-FREQUENT ABLATION IN TREATMENT OF PATIENTS WITH BARRETT ESOPHAGUS

(Academician Predrag Peško)

Current activities on the project include the follow-up of existing patients. Work on the project has been very difficult during the pandemic of Covid-19. The plan for the past year could not be accomplished. In the current year, the final upper GI endoscopy is scheduled, with the intent to compare pathohistology data with the results of electron microscopy which was completed three years ago.

Project: OPTIMIZATION (INDIVIDUALIZATION) OF RECTAL CANCER TREATMENT USING MOLECULAR AND GENETIC PREDICTIVE MARKERS

(Academician Zoran Krivokapić)

The focus of the research in 2020 was the optimization of methodology for the analysis of predictive molecular markers and further individualization of rectal cancer treatment. The three-dimensional (3D) culture system of human colorectal cancer cell lines was established, which more accurately reflects the characteristics of the tumor microenvironment in the *in vitro* setting by providing more physiological interactions with neighbouring cells and extracellular matrix. The analysis of potential molecular markers for predicting the response to therapy and testing of synthetic and natural antitumor agents is ongoing. In the next year, the expression levels of selected genes involved in the processes of proliferation, apoptosis and epithelial-mesenchymal transition will be compared before and after treatment. The therapy response will be evaluated using both the *in vitro* 3D culture system and *ex vivo* stimulation of tumor tissue collected from patients with rectal cancer.

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**Project: DEFINITION OF THE OPTIMAL BIOMECHANICAL
CONDITIONS FOR BONE REGENERATION DURING
CORRECTION OF LONG BONES DEFORMITIES AND
CONSTRUCTION OF NEW SURGICAL CORRECTION DEVICE**

(Academician Milorad Mitković)

During 2020, a new method and device for surgical treatment of complex articular fractures were developed, as a result of the original ideas that came from the rich personal clinical experience of the team leader and members. The research started in the direction of developing a method and device that will enable good radiological postoperative visualization of the entire injured joint, both from the AP and from the lateral direction. As a goal of this research and development, there was a new device which at the same time would be a fixation and rehabilitation method of surgical treatment of complex articular fractures. There is no data in the international literature of such or similar attempts. After finishing technical documentation for the main component, the first prototype was made at the end of the year.

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**Project: HEART FAILURE: IMPROVEMENT IN PREVENTION,
DIAGNOSTIC APPROACH, TREATMENT AND REHABILITATION**

(Academician Petar M. Seferović)

In 2020, Prof. Seferović was elected Vice-President of the European Society of Cardiology (ESC) and continued his mandate as the direct Former President of the Heart Failure Association of the ESC and as an Academician of the Serbian Academy of Sciences and Arts (SASA).

Under the auspices of the SASA, the 18th International Congress of Clinical Cardiology and Heart Failure, CardioS 2020 online, took place on 25–26 September, gathering 1106 participants from ten countries.

Prof. Seferović continued activities on the HFA Atlas, a European project that aims to determine heart failure (HF) epidemiology, resources for HF management and organization of national HF societies in 42 European counties.

In October 2020, the HF patients association was founded, as a joint project of the HF Society of Serbia and the SASA, with a goal of coordinating HF patients activities in order to improve diagnostic and treatment options as well as the availability of HF drugs and devices.

During 2020, the HF Quality of Care Centers initiative was launched in ten counties, which will allow up-to-date treatment of HF patients and improvement of their prognosis. The progress on the ESC Textbook on heart failure is solid and the project is in the final stage. The textbook will be the first publication of such kind about HF, with prof. Seferović as one of the editors-in-chief.

Prof. Seferović had 44 invited lectures at international online congresses in 2020 and published 36 papers in top international journals.

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Project: EVALUATION OF THE EFFICACY OF HARVESTING, EX VIVO PROCESSING AND CRYOPRESERVATION OF STEM CELLS DERIVED FROM BONE MARROW AND PERIPHERAL BLOOD FOLLOWING MOBILIZATION

(Corresponding Member Bela Balint)

A number of basic researches and (pre)clinical studies produced and optimized different *ex vivo* and *in vivo* methods to determine the biological

and functional characteristics of primitive or immature vs. mature stem cells (MCs). Recently discovered cells in bone marrow (MB) – that is “Very Small Embryonic Like” (VSEL) cells have excessive potential to differentiate not only into hematopoietic cells, but also into cellular lineages of other tissues/organs. They are also characterized by some attributes that are characteristics of embryonic SC (such as “intersystemic-cellular-plasticity”).

Based on the “recovery” of total cell count and cellular functionality (clonogenicity/viability) of different SC compartments – with expressed CD34 antigen such as CD45⁺/CD34⁺ phenotype and immature CD34⁺/CD90⁺ subpopulation – a variety of methods and systems for their collection and *ex vivo* manipulation were introduced. However, perfect SC harvesting, processing and purging operating procedures, as well as some aspects of optimized cryopreservation systems are still unresolved completely. Thus, these procedures need to be improved in order to provide superior cell protection from bio-physical injuries and cryo-damages.

The project includes the following subprojects:

- a) examination of SCs designed for conventional hematopoietic SC-transplants;
- b) investigation of SCs planned for the use in the fields of regenerative medicine.

The use of an optimized SC harvesting protocol (with quality control – cell quantification and viability testing of unmanipulated and cryopreserved CD34⁺ cells), as well as using our own improved *ex vivo* processing, purging and freezing methods resulted in a satisfactory cell protection from bio-physical or cryo-biological injuries. Precisely, the obtained cell yield (recovery) was approximately 80%, and the cell viability about 60–70% (trypan blue exclusion test) and up to 95% (7-aminoactinomycin-D flow cytometry-assay or 7-AAD), respectively.

These results of cryo-biological research point to adequately used controlled-rate freezing (with compensation of the released fusion heat) that is essential for a highly efficient cryopreservation of some of the categories of SCs. The most appropriate cryoprotective agent was the dimethyl sulfoxide (DMSO) solution – in 10% final concentration in the investigated cryo-biological system. Also, we confirmed that SCs can be effectively long-term stored at the temperature $-90 \pm 5^{\circ}\text{C}$ (for up to five years) and at $-140 \pm 5^{\circ}\text{C}$ (for several decades in mechanical freezers).

In our Center for SC transplants approximately 1,500 patients (conventional transplants) and about 80 patients (regenerative medicine) were treated by applying the above mentioned modalities for the therapeutic use of SCs. In the past year, the results were achieved in the planned range in relation

to the investigation design. The evaluation/analysis of the rate of research realization was assessed on the basis of different qualitative and quantitative parameters of procedures, as well as on the basis of the number of published publications.

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**Project: INVASIVE MANAGEMENT OF PATIENTS WITH ACUTE
CORONARY SYNDROME – FROM EARLY DIAGNOSTICS
TO COMPLEX PERCUTANEOUS CARDIOVASCULAR
INTERVENTIONS**

(Corresponding Member Goran Stanković)

Cardiovascular diseases represent the most frequent cause of death in Serbia. Invasive management of patients with acute coronary syndrome (ACS) represents the gold standard treatment of these patients, which is associated with reduced short- and long-term mortality. Contemporary research in this field aims at elucidating the mechanisms of the underlying disease process, ultimately resulting in better risk stratification and a more tailored treatment protocols including both pharmacological approaches and interventional techniques. The main objective of the present project is to facilitate data collection, analysis and interpretation, of patients presenting with ACS and treated invasively, from leading academic hospitals in Serbia.

In 2020 we initiated the formation of a multi-institutional registry (Acute and Long-term Outcomes of Patients With Acute Myocardial Infarction Treated With PCI – SINERGY-ACUTE) including consecutive patients with ACS treated with an invasive strategy, from leading university and academic centers in Serbia. The coordinator of this registry is Professor Goran Stanković, from the University Clinical Center of Serbia, with participation of the Institute for Cardiovascular Diseases Vojvodina, represented by professor M. Petrović and professor I. Srdanović, Clinical Hospital Center Zemun, represented by professor A. N. Nešković, Clinical Hospital Center B. Kosa, represented by professor M. Zdravković, and Clinical Hospital Center Zvezdara, represented by professor N. Marković. SINERGY-ACUTE is a web-based registry with standardized data collection, which was registered at www.clinicaltrials.gov NCT04506047. Further development of the SINERGY-ACUTE registry is planned within the scope of the project described here, as well as within the national research program IDEJE of the Science Fund of Serbia.

During 2020 the main objectives of the present project were addressed through the following international research studies: 1) examination of the effects of colchicine on the occurrence of adverse events in patients with acute myocardial infarction (CLEAR-SINERGY), in cooperation with professor Sanjit Jolly of the Population Health Research Institute from Ontario, Canada; 2) evaluation of the impact of coronary microcirculation function on the infarct size, in cooperation with professor Javier Escaned, from Hospital Clinico San Carlos, Madrid, Spain; 3) assessment of the role of intracoronary optical coher-

ence tomography in the management of patients with out of hospital cardiac arrest (the CAOCT study); 4) cardiac magnetic resonance imaging in the assessment of infarct size and heart failure following acute myocardial infarction.

Due to the COVID-19 pandemic, the traditional annual cardiology conference, SINERGY (Serbian conference on interventional cardiology, cardiovascular imaging and drug therapy) was held in the digital format from 10 to 11 September 2020 (www.sinergy-belgrade.com). This meeting traditionally aims at regional dissemination of European clinical management guidelines, while mostly focusing on the locally relevant aspects. Each year more than 1200 participants are registered for the conference, from more than 20 countries, with invited lecturers from renowned international faculties from Europe, North America, India, China and Japan.

During 2020 and within the scope of the project presented here, professor Stanković was appointed a chair or gave introductory lectures at international cardiology meetings in Minneapolis, Paris, Milano, Sofia and Prague. In addition, he organized and moderated nine webinars about the contemporary treatment of the coronary artery disease, in cooperation with EuroPCR and Visible Heart Lab at the University of Minnesota, USA. Professor Stanković held, during 2020, 31 presentations as invited faculty at on-line cardiology conferences, including the European Society of Cardiology congress, the American College of Cardiology conference, as well as at the official meetings of interventional cardiology societies of Asia-Pacific and South America.

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Project: **INVESTIGATION OF REDOX HOMEOSTASIS MECHANISMS IN NON-MALIGNANT AND MALIGNANT DISEASES OF GENITOURINARY TRACT**

(Corresponding Member Tatjana Simić)

Project activities focused on the examination of redox homeostasis mechanisms in chronic renal failure and prostate cancer patients. Projects “Association of antioxidant enzymes polymorphisms with extracellular vesicles content in CKD patients” and “The role of antioxidant and ACE2 genetic profile in risk stratification and mid-term prognosis of COVID-19 patients” were approved for funding by the Serbian Science Fund.

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ACADEMIC COMMITTEE FOR BIOMEDICAL RESEARCH

(Academician Ljubiša Rakić)

The work plan of the Committee includes:

1. Experimental research;
2. Problems of public health in Serbia;
3. International collaboration.

The experimental research included: 1. studying different models of neurodegenerative diseases and the effects of different environmental influences in vitro or in vivo; 2. research of health effects of radiogenotoxic agents

and definition of radiobiodosimetric model for diagnosis and differential diagnosis of malignant and nonmalignant pulmonary diseases; 3. the role of neurotransmitters in early embryogenesis.

Project: **HOMEOSTATIC MECHANISMS AND THE REGULATION SYSTEM OF BEHAVIOR**

(Academician Ljubiša Rakić)

Within the project, experimental research included the study of different models of neurodegenerative diseases and the effects of various environmental interventions *in vitro* and *in vivo*.

In the model of experimental autoimmune encephalomyelitis (EAE), the sex-specific changes in the hypothalamic-pituitary-gonadal axis (1), as well as astrocytic diversity (2) were described. The administration of B (B1, B2, B3, B5, B6, B12) vitamins after the peripheral nerve injury modulated macrophages/Schwann cell interactions in a time-dependent manner and was correlated with the regeneration of the injured nerve (3). Vitamin B1 administration prevents toxic effects of pesticides in the model of organophosphate pesticide (Chlorpyrifos) intoxication via recovering cholinesterases activities, amelioration of oxidative stress and inflammation, and prevention of apoptosis (4). In the cell culture, the B1 vitamin was shown to regulate the immune response through inhibition of inflammatory properties of dendritic cells (5). In the model of experimental brain injury, the Gray-level co-occurrence matrix analysis was used for the subtle analysis of granule neurons of the hippocampal dentate gyrus (6).

In the animal model of Alzheimer's disease (AD) it has been shown that a restrictive diet (every other day feeding) leads to worsening of the existing AD-like pathology (7), while the same approach, but applied preventively, in the animal model of brain injury, leads to the stabilization of changes caused by glucocorticoid signaling cascade (8). Treatment with fullerene nanoparticles (C60(OH)24-45, work in progress), as well as with the substance that activates the proteasome system (18 α -GA) and in combination with omega-3 fatty acids leads to a reduction in the accumulation of amyloid-beta and consequent improvement in the behavioral outcome of treated AD animals (9). The animal model AD was also characterized in detail behaviorally through the measurement of the degree of sensitivity of animals (Frailty Index and Phenotype Frailty Score) and the obtained results indicated significant differences of those parameters concerning sex and age of animals (10). An over-

view of the importance of maintaining cholesterol homeostasis in the brain for AD pathology prevention (11) was also given.

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10. Todorovic S., Loncarevic-Vasiljkovic N., Jovic M., Sokanovic S., Kanazir S., Mladenovic Djordjevic A., 2020: Frailty index and phenotype frailty score: Sex- and age-related differences in 5XFAD transgenic mouse model of Alzheimer's disease. **Mechanisms of Ageing and Development**, 2020 Jan; 185,111195. doi: 10.1016/j.mad.2019.111195. PMID: 31837369
 11. Smiljanic K., Loncarevic-Vasiljkovic N., Kanazir S., Mladenovic Djordjevic A., 2020: Cholesterol in Brain Health and Pathologies: the role in Alzheimer's Disease. **Frontiers in Clinical Drug Research - Dementia**, Bentham Science, Vol 1, Book Chapter 2, 26–78.
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Project: **INVESTIGATION OF HEALTH EFFECTS OF
RADIOGENOTOXIC AGENTS**

Academician Ljubiša Rakić

Academician Ljubiša Rakić and Professor Dr. Svetlana Žunić presented the lecture “The hormesis-threshold biodosimetric model for estimation of low-slow dose effects from internal sources of ionizing radiation” at the “Conference on Radiation Safety: Improving Radiation Protection in Practice” (virtual event) in Vienna. This interdisciplinary study included 1) the results of research of biological parameters of lung washings for diagnostic purposes in patients with lung cancer and the control groups of smokers and nonsmokers (Clinical Center of Serbia and Serbian Academy of Sciences and Arts) and 2) optomagnetic imaging spectroscopy of cytological specimens, by the authors best knowledge – for the first time in relation to lung cancer (performed by NanoWorld AG Laboratory, Biomedical Engineering Division, Belgrade, Serbia & TFT Nano Center, Quantum Optics Division, Belgrade, Serbia).

There is significant engagement in the cooperation with the institutions of the Russian Academy of Sciences, the Academy of Sciences of the Republic of Srpska, experimental research in the International Laboratory for Brain Research in Kotor, the University of California in Los Angeles.

Zunic S. S., Rakic Lj. M., Koruga Dj., Lalic M., 2020: 307-the hormesis-threshold biodosimetric model for estimation of low-slow dose effects from internal sources of ionizing radiation. Comparative study of hormesis-threshold biodosimetric model and the optomagnetic imaging spectroscopy method in characterization of biophysical properties of pulmonary tissue. **International conference on RADIATION SAFETY / Improving Radiation Protection in Practice**. Extended Abstracts' book Nov. 9-20, 2020, 503–505.

Zivgarevic Lj., Kozarevic N., Zunic S., 2020: 18F-FDG PET/CT “hepatic super-scan” in incomplete Carney triad. **Srpski arhiv za celokupno lekarstvo**, vol. 148, 1-2, 115–118.

Никишина Г. Д. А., Мальченко Л. А., Милошевич И., Ракич Л., Шмуклер Ю. Б., 2020: Влияние галоперидола и ципрогептадина на цитоскелет дробящихся зародышей морского ежа. **Биологические мембраны**, том 37, № 2, 120–125.

Project: **BIOMEDICAL RESEARCH IN DENTISTRY**

(Academician Vojislav Leković)

During 2020, through the Serbian Academy of Sciences and Arts (SASA), Prof. Leković actively participated in a further complex multidisciplinary research on the etiology and pathogenesis of both periodontal and peri-implant diseases.

The laboratory-molecular research on the role of certain signaling pathways in the mechanisms of bone resorption associated with both periodontal and peri-implant diseases continued. Additionally, further research on the role of less known proinflammatory cytokines in the etiopathogenesis of peri-implant diseases was performed through various laboratory methods. Interesting results were obtained that shed light on the processes beyond peri-implant diseases known as peri-implantitis and peri-mucositis. Some data were found on both their similarities and differences with the periodontal diseases.

The past year was marked by a specific epidemiologic situation, caused by the Covid-19 pandemic. Therefore, these broad scientific data were disseminated mostly through online conferences. Several sci-indexed papers were published as a result of the above-mentioned research.

COMMITTEE ON CARDIOVASCULAR PATHOLOGY

(Academician Vladimir Kanjuh)

Due to the COVID-19 pandemic, the regular Annual Meeting of the Committee was not held, but the Report on its work in 2020 was submitted to the Department of Medical Sciences and the Executive Committee of the SASA and published in the magazine *Medici.com* (Banja Luka, RS) 2020, XVII (102), 84–85.

The statements of the Committee's Chairman point out that the members of the Committee: Academician N. M. Lalić was elected President of the European Diabetes Federation and Academician P. Seferović was elected one of the Vice Presidents of the European Society of Cardiology, and his interview "Facing and embracing new challenges" as the President of the

Association for Heart Failure of the European Society of Cardiology was published on 7 May 2020 in the “European Heart Journal”.

The Committee was a co-organizer of the following five important cardiac gatherings:

1. 5th Congress of the 34th Chapter of the American College of Cardiology for Serbia and the Republic of Srpska, Belgrade, 28–29 February 2020 (organizers D. Vulić and M. Nedeljković).

2. “Serbian Conference on interventional cardiology, cardiovascular imaging, and drug therapy. SINERGY”, Belgrade, 10–11 September 2020. The congress attracted 1682 participants and 3520 video views. The geographical distribution of participants was as follows: Serbia 59%, Germany 3%, India 3%, Ukraine 2%, Macedonia 2%, B&H 2%, Georgia 2%, other countries collectively 27% (total 44 different countries) (organizer G. Stanković).

3. Joint symposium of the Association for Hemostasis and Thrombosis of Serbia and the National Association for Hemostasis and Thrombosis of Russia held electronically on 9 October 2020 (organizer N. Antonijević).

4. “INNOVATION of knowledge and possibilities of development of Cardiology in Serbia (NOVAK)”. Virtual meeting held on 10–11 December 2020 (organized by the Association of Cardiologists of Serbia, S. Stojković and B. Beleslin).

5. The Third “Dr Nanette Kass Wenger” International Conference on Cardiovascular Disease in Women. Belgrade, School of Medicine, 21 December 2020. Organizers: B. Parapid, A. Mischie, A. Nešković, V. Kanjuh, K. Lalić, with 36 participants.

The Committee members were engaged in writing and publication:

1. Postgraduate textbook “**Cardiology clinical guide**”. Edit. **B. Beleslin**, A. Đorđević, Dikić, V. Giga, M. Dobrić (+ 11 co-editors). Association of Cardiologists of Serbia, Belgrade, 2019.

2. Lačković V. et al. **scientific monograph “Histology and embryology of the cardiovascular and lymphatic vascular system – clinical significance”**. Edit. Kanjuh V. (and co-author of eight chapters) and Todorović V. (and co-author of 14 chapters). Office ed. Nikolić G., MASA, CCMN. Podgorica, 2020.

3. Book II of the International Summer School of Cardiology ECPD “**New trends in prevention, diagnosis and treatment of cardiovascular diseases**” is being prepared. Editor-in-chief **V. Kanjuh**, co-editors Nathan D. Wong and **D. Vulić**.

The Committee contributed to the fight against the COVID-19 pandemic:

The SASA Commission for Monitoring and Taking Measures Related to COVID-19: President N. M. Lalić, Members M. Čolić and G. Stanković wrote the Instruction on how to protect SASA members from COVID-19; translated the following two documents of the European Diabetes Association: “Recommendations for the treatment of diabetes during infection – Rules during the disease” and “Information on the origin and spread of COVID-19 – Guide for people with diabetes” and posted on the SASA website printed papers by V. Kanjuh, S. Stojković, as well as relevant texts by G. Stanković, A. Ristić, V. Stojanov, N. Radivojević and I. Nedeljković.

Kanjuh V., Kanjuh S., Pušac M.: SARS-CoV-2 → COVID-19. “The role and contribution of pathologists in the research of etio-pathogenesis and patho-morphological substrate of the disease (autopsy, histopathology and electron microscopy) (X interactive educational quiz)”. Bilingual Serbian–English paper. **Medici.com** (Banja Luka, RS) 2020; XVII (99), 66–75.

Kanjuh V., Kanjuh S., Zdravković M., Pušac M.: “Virus properties. Ebola virus disease (Ebola hemorrhagic fever) – one of the most deadly diseases of mankind (General overview)”. Bilingual Serbian–English paper. **Medici.com** (Banja Luka, RS, 2020; XVII (100), 66–71.

Tešić M., Stojković S., “Corona virus and cardiovascular complications”. Bilingual Serbian–English paper. **Heart and Blood Vessels** 2020; 39 (2), 45–46.

Petar M. Seferović, Marco Metra, Jose Ramon Gonzalez Juanatey, Marija Polovina and Daniela Tomasoni. The European Society for Cardiology. “**ESC Guidance for the Diagnosis and Management of CV Disease during the COVID-19 Pandemic**”. 19 <https://www.escardio.org/Education/COVID-19-and-Cardiology/ESC-COVID-19-Guidance>. (Last update: 10 June 2020).

G. Stanković, during the “Serbian Conference on interventional cardiology, cardiovascular imaging, and drug therapy. SINERGY”, Belgrade, 10–11 September 2020, organized the session “Acute Coronary Syndrome in 2020: Everyday practice and challenges of the pandemic”. Prof. Alaide Chieffo from Milan presented the European recommendations for percutaneous coronary intervention in COVID-19 patients and Prof. Marko Noč shared his experiences from Slovenia.

COMMITTEE FOR UROGENITAL TUMORS

(Academician Jovan Hadži-Đokić)

The Committee for Urogenital Tumors was founded in 2008.

During 2020, the members of the Committee continued the work on various projects and researches, such as:

- Prostate cancer screening in Serbia
- Prostate cancer epidemiology in Serbia

- The changes and shifts of clinical and pathological stages of urogenital tumors in the recent decade
- The diagnostics and the management of the urinary bladder cancer
- Radical cystectomy and the urinary derivations
- Epidemiological studies of bladder cancer in Serbia
- Urinary PSA: potential marker for BPH
- Renal tumors with the invasion of v. renalis and v. cava inferior
- Committee members studied the prostate tissue of various sizes after Thulium laser surgery.

During 2020, members of the Committee published several papers and participated with papers at many congresses and professional meetings in the country and abroad (EAU congress, Amsterdam 2020).

Committee members participated in writing the chapters for the textbook “Selected Chapters in Urology”, which was promoted on 20 October 2020 under the auspices of the SASA Library. This book was accepted as an official textbook at the same Faculty by the Decision of the Teaching-Scientific Council of the Medical Faculty in Niš.

Organized by the urology section of SLD (Prof. Bašić), the Serbian Academy of Sciences and Arts (Academician J. Hadži-Đokić), the Balkan Urological Association and the European School of Urology, a virtual national congress was held on 17 and 18 October 2020, with high class presentations, moderators and live discussions. With the support and participation of 37 domestic and foreign lecturers, the congress was attended by 662 participants.

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 2. Veljković A., Hadži-Đokić J., Sokolović D., Čukuranović R., Čukuranović-Kokoris J., Bašić D., Đorđević B., Stojanović M., Šmelcerović A., Kocić G., 2020: Local and Systemic Oxidative Stress in Balkan Endemic Nephropathy Is Not Associated with Xanthine Oxidase Activity. **Oxidative Medicine and Cellular Longevity**, 2020 Aug 18; 2020: 8209727.
 3. Veljković A., Hadži-Dokić J., Sokolović D., Bašić D., Veličković-Janković L., Stojanović M., Popović D., Kocić G., 2020: Xanthine Oxidase/Dehydrogenase Activity as a Source of Oxidative Stress in Prostate Cancer Tissue. **Diagnostics (Basel)**. 2020 Sep 3; 10 (9), 668. doi: 10.3390/diagnostics10090668
 4. Tufegdžić M, Vasić V, Hadži-Đokić J. Renal cell carcinoma of horseshoe kidney-case report. **Srpski arhiv za celokupno lekarstvo**, Online First September 15, 2020.

5. Gašić U., Ćirić I., Pejčić T., Radenković D., Djordjević V., Radulović S., Tešić Ž., 2020: Polyphenols as Possible Agents for Pancreatic Diseases. **Antioxidants (Basel)**. 2020 Jun 23; 9 (6), 547.
 6. Mijatović S., Savić-Radojević A., Plješa-Ercegovac M., Simić T., Nicoletti F., Maksimović-Ivanić D., 2020: The double-faced role of nitric oxide and reactive oxygen species in solid tumors (2020) **Antioxidants**, 9 (5), art. no. 374.
 7. Avramović N., Mandić B., Savić-Radojević A., Simić T., 2020: Polymeric nano-carriers of drug delivery systems in cancer therapy. **Pharmaceutics**, 12 (4), art. no. 298.
 8. Pljesa-Ercegovac M., Savic-Radojevic A., Coric V., Radic T., Simic T., 2020: Glutathione transferase genotypes may serve as determinants of risk and prognosis in renal cell Carcinoma. **BioFactors**, 46 (2), 229–238.
 9. Ignjatovic I., Potic M., Basic D., Dinic L., Skacic A., 2020: Laparoscopic minimally invasive sacrocolpopexy or hysteropexy and transobturator tape combined with native tissue repair of the vaginal compartments in patients with advanced pelvic organ prolapse and incontinence. **International Urogynecology Journal**, 2020 Sep 8. doi: 10.1007/s00192-020-04519-7. Online ahead of print. PMID: 32897460
 10. Vukicevic D., Rovcanin B., Gopcevic K., Stankovic S., Vucevic D., Jorgacevic B., Mladenovic D., Veskovic M., Samardzic J., Jesic R., Radosavljevic T., 2020: The role of MIF in hepatic function, oxidative stress, and inflammation in thioacetamide-induced liver injury in mice: Protective effects of betaine. **Current Medicinal Chemistry**, 2020.
 11. Šošić-Jurjević B., Ajdžanović V., Miljić D., Trifunović S., Filipović B., Stanković S., Bolevich S., Jakovljević V., Milošević V., 2020: Pituitary hyperplasia, hormonal changes and prolactinoma development in males exposed to estrogens – an insight from translational studies. **International Journal of Molecular Sciences**, 21 (6).
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COMMITTEE ON IMMUNOLOGY AND ALLERGOLOGY

(Academician Miodrag Čolić)

The most important activity of the Committee was the promotion of scientific research in the field of immunology and allergology, which this year was specific due to the COVID-19 pandemic. Three members of the board (T. Simić, V. Trajković and S. Tomić) started or finished work on three projects in the field of Covid-19. Đ. Miljković and S. Tomić, together with their colleagues, processed over 1000 scientific papers in the field of Covid-19 immunology and submitted translated abstracts to the Ministry of Science and the Crisis Staff for the Covid-19 pandemic. This year, the traditional scientific meeting on the occasion of the World Immunology Day was not held. Academicians Lalić and Čolić, as members of the SASA working group for Covid, actively participated in the advisory activities related to the pandemic. Academician Čolić was elected a member of the Covid expert group by the

Inter-Academic Partnership, where he had several online meetings and communications via emails. Board members published dozens of papers in prestigious international journals. They also actively participated in the preparations for the European Immunology Congress, which will be held in Belgrade next year. Due to the Covid-19 pandemic, communication among the Committee members took place via emails.

COMMITTEE FOR MULTIDISCIPLINARY STUDIES OF DIABETES

(Academician Nebojša M. Lalić)

Despite unfavourable conditions due to the pandemic, the Committee was the co-organizer of the 15th Congress of the Central European Diabetes Association online from Belgrade, on 13–15 December 2020, with more than 300 participants. The Committee members were invited lecturers at online international congresses in Europe (ECE and EASD), Asia (AASD, India DiaCon) and Africa (DiaEgypt and Guideline Conference, Cairo, Egypt).

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1. Giorgino F., Bhana S., Czupryniak L., Dagdelen S., Galstyan G. R., Janež A., Lalić N., Nouri N., Rahelić D., Pantea Stoian A., Raz I., 2020: Management of patients with diabetes and obesity in the COVID-19 era: experiences and learnings from South and East Europe, the Middle East, and Africa. **Diabetes Research and Clinical Practice**, 2020 Dec 10:108617. doi: 10.1016/j.diabres.2020.108617. Online ahead of print.
 2. Vaxillaire M., Bonnefond A., Liatis S., Ben Salem Hachmi L., Jotic A., Boissel M., Gaget S., Durand E., Vaillant E., Derhourhi M., Canouil M., Larcher N., Allegaert F., Medlej R., Chadli A., Belhadj A., Chaieb M., Raposo J. F., Ilkova H., Loizou D., Lalic N., Vassallo J., Marre M., Froguel P.; MODY-MGSD Study Group, 2020: Monogenic diabetes characteristics in a transnational multicenter study from Mediterranean countries. **Diabetes Research and Clinical Practice**, 2020 Nov 24; 171, 108553. doi: 10.1016/j.diabres.2020.108553. Online ahead of print.
 3. Cardio-Metabolic Academy Europe East, South Expert Panel, M. Banach, D. Gaita, M. Haluzik, A. Janez, Z. Kamenov, P. Kempler, N. Lalic, A. Linhart, D. PMikhailidis, A. Nocoń, J. Silva Nunes, N. Papanas, J. Filipe Raposo, M. Rizzo, A. Pantea Stoian, 2020: Adoption of the ADA/EASD guidelines in 10 Eastern and Southern European countries: physician survey and good clinical practice recommendations from an International Expert Panel. **Diabetes Research and Clinical Practice**, 2020 Nov 12: 108535. doi: 10.1016/j.diabres.2020.108535. Online ahead of print.
 4. Scherthaner G., Shehadeh N., Ametov A. S., Bazarova A. V., Ebrahimi F., Fasching P., Janež A., Kempler P., Konrāde I., Lalić N. M., Mankovsky B., Martinka E., Rahelić D., Serafinceanu C., Škrha J., Tankova T., Visockienė Ž., 2020: World-wide inertia to the use of cardiorenal protective glucose-lowering drugs (SGLT2i and GLP-1 RA) in high-risk patients with type 2 diabetes. **Cardiovascular Diabetology**, 2020 Oct 23; 19 (1), 185.

5. Mandic D., Bjegovic-Mikanovic V., Vukovic D., Djikanovic B., Stamenkovic Z., Lalic N. M., 2020: Successful promotion of physical activity among students of medicine through motivational interview and Web-based intervention. **PeerJ.**, 2020 Jul 8; 8, e9495.
 6. Ceriello A, Standl E., Catrinoiu D., Itzhak B., Lalic N. M., Rahelic D., Schnell O., Škrha J., Valensi P.; “Diabetes and Cardiovascular Disease (D&CVD)” Study Group of the European Association for the Study of Diabetes (EASD), 2020: Issues for the management of people with diabetes and COVID-19 in ICU. **Cardiovascular Diabetology**, 2020 Jul 20; 19 (1), 114. Review.
 7. Lloyd C. E., Sartorius N., Ahmed H. U., Alvarez A., Bahendeka S., Bobrov A. E., Burti L., Chaturvedi S. K., Gaebel W., de Girolamo G., Gondek T. M., Guinzbourg M., Heinze M. G., Khan A., Kiejna A., Kokoszka A., Kamala T., Lalic N. M., Lecic-Tosevski D., Mannucci E., Mankovsky B., Müssig K., Mutiso V., Ndeti D., Nouwen A., Rabbani G., Srikanta S. S., Starostina E. G., Shevchuk M., Taj R., Valentini U., van Dam K., Vukovic O., Wölwer W., 2020: Factors associated with the onset of major depressive disorder in adults with type 2 diabetes living in 12 different countries: results from the INTERPRET-DD prospective study. **Epidemiology and Psychiatric Sciences**, 2020 Jun 2; 29, e134.
 8. Ceriello A., Standl E., Catrinoiu D., Itzhak B., Lalic N. M. EASD Study Group, 2020: Issues of Cardiovascular Risk Management in People With Diabetes in the COVID-19 Era. **Diabetes Care**, 2020 Jul; 43 (7), 1427–1432.
 9. Schnell O., Standl E., Cos X., Heerspink H. J., Itzhak B., Lalic N., Nauck M., Ceriello A., 2020: Report from the 5th cardiovascular outcome trial (CVOT) summit. **Cardiovascular Diabetology**, 2020 Apr 17; 19 (1), 47.
 10. Gabriel R., Boukichou Abdelkader N., Acosta T., Gilis-Januszewska A., Gómez-Huelgas R., Makrilakis K., Kamenov Z., Paulweber B., Satman I., Djordjevic P., Alkandari A., Mitrakou A., Lalic N., Colagiuri S., Lindström J., Egido J., Natali A., Pastor J. C., Teuschl Y., Lind M., Silva L., López-Ridaura R., Tuomilehto J.; e-PREDICE Consortium, 2020: Early prevention of diabetes microvascular complications in people with hyperglycaemia in Europe. ePREDICE randomized trial. Study protocol, recruitment and selected baseline data. **PLoS One**. 2020 Apr 13; 15 (4), e0231196.
 11. Jotic A., Milicic T., Lalic K., Lukic L., Macesic M., Stanarcic Gajovic J., Stoiljkovic M., Gojnic Dugalic M., Jeremic V., Lalic N. M., 2020: Evaluation of Glycaemic Control, Glucose Variability and Hypoglycaemia on Long-Term Continuous Subcutaneous Infusion vs. Multiple Daily Injections: Observational Study in Pregnancy 2020:es With Pre-Existing Type 1 Diabetes. **Diabetes Therapy**, 2020 Apr; 11 (4), 845–858.
 12. Janež A., Guja C., Mitrakou A., Lalic N., Tankova T., Czupryniak L., Tabák A. G., Prazny M., Martinka E., Smircic-Duvnjak L., 2020: Insulin Therapy in Adults with Type 1 Diabetes Mellitus: a Narrative Review. **Diabetes Therapy**, 2020 Feb; 11 (2), 387–409. Review.
 13. Tricò D., Mengozzi A., Nesti L., Hatunic M., Gabriel Sanchez R., Konrad T., Lalić K., Lalić N. M., Mari A., Natali A.; EGIR-RISC Study Group, 2020: Circulating palmitoleic acid is an independent determinant of insulin sensitivity, beta cell function and glucose tolerance in non-diabetic individuals: a longitudinal analysis. **Diabetologia**. 2020 Jan; 63 (1), 206–218.
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**COMMITTEE FOR ENDOCRINOLOGY
AND ENVIRONMENTAL FACTORS**

(Academician Dragan Micić)

In 2020 the Committee for Endocrinology and Environmental Factors performed activities in preparing a separate book of *Glas* of the Department of Medical Sciences devoted to advances in endocrinology. The scientific conference “Advances in endocrinology” was organized at the Serbian Academy of Sciences and Arts in late 2019, with participation of 16 experts from the field. During 2020, papers presented at the conference were collected and prepared for publication in late 2020: *Glas* CDXXX Serbian Academy of Sciences and Arts, Department of Medical Sciences, book 52 – 2020; Editor: Academician Dragan Micić.

Due to the epidemiological situation related with the coronavirus, the Fifth Serbian Congress of Obesity in organization of the Committee for Endocrinology and Environmental Factors that was planned for the second part of 2020 was postponed.

The SASA Committee for Endocrinology and Environmental Factors, together with the Serbian Association for the Study of Obesity and Committee for Obesity of Endocrine Section of Serbian Medical Association plan to organize the Fifth Serbian Congress of Obesity in the second part of 2021, depending of the epidemiological situation.

COMMITTEE FOR HUMAN REPRODUCTION

(Academician Nebojša Radunović)

During 2020, the activities of the President of the SASA Committee for Human Reproduction, Academician Nebojša Radunović, were related to the Serbian Academy of Sciences and Arts, the Medical Faculty of the University of Belgrade and the Clinic for Gynecology and Obstetrics KCS. He is the president of the National Association for Human Reproduction of Serbia and the Association for Perinatal Medicine of Serbia, and a member of the management of the European Association for Human Reproduction and Embryology (ESHRE). At the SASA, he is the chairman of the Committee for Human Reproduction, a member of the Committee for Cardiovascular Pathology, a member of the Committee for Urogenital Tumors, a member of the Committee for Multidisciplinary Diabetes Research, a member of the Interdepartmental Committee for Minority and Human Rights and a member of the Serbian Question Program Committee.

In 2020, academician Nebojša Radunović was elected Professor Emeritus of the Faculty of Medicine, University of Belgrade. In addition to scientific and clinical work, he continues to educate gynecologists and embryologists.

As part of the collection “Serbia: Gender, Politics, Population”, he published a paper “On Sexual and Reproductive Health of Women and Men” published by the Serbian Academy of Sciences and Arts and the Institute of Social Sciences Belgrade, thus continuing his efforts against the “white plague” in the Republic Serbia.

During his one-month stay in the United States in early 2020, he collaborated with colleagues from the Mount Sinai Medical Center, School of Medicine, Department of Obstetrics and Gynecology, New York and New York University, Medical Center, Department of Obstetrics and Gynecology, New York. He agreed to promote joint research in the field of human reproduction.

For most of 2020, the Covid-19 pandemic was ongoing, which is why, together with members of the Board, he followed the guidelines of eminent international institutions and associations in the field of human reproduction, as well as the experiences of other countries. The development of the Guidelines and Proceedings of the Association for Human Reproduction of Serbia in connection with pregnancy and the Covid-19 virus, as well as in connection with assisted reproductive technologies and the virus Covid-19 is planned.

Academician Nebojša Radunović leads a research project within the SASA “Study of fetoplacental development in pregnancy caused by assisted reproduction” (F-81). At the SASA, he is an associate on the projects “Pathological morphology and morphological-clinical correlations in cardiovascular diseases (including historical aspects)” and “Heart failure: improvement, prevention, diagnosis, treatment and rehabilitation”. He collaborates with research groups in Greece, Turkey, Italy, France and the USA.

As part of scientific research, he continues to work within the ART techniques of reproduction and testing of potassium channels in the myometrium – as a potential site of action of tocolytics, and continues with the research in collaboration with the Laboratory of Neurophysiology of the Institute of Medical Physiology “Richard Burian” of the Faculty of Medicine, University of Belgrade, through animal models for testing instinctual behavior.

During 2020, the SASA Committee for Human Reproduction continued cooperation with the National Association for Human Reproduction of Serbia and the National Association for Perinatal Medicine of Serbia, among other things in promoting reproductive health and monitoring prenatal development.

The new epidemiological situation, caused by the Covid-19 pandemic, entirely changed work during 2020.

ACADEMIC COMMITTEE FOR THE SERBIAN QUESTION

(Academician Vladimir Kostić)

The SASA Committee for the Serbian Question was formed pursuant to the decision of the SASA Presidency at its 5th Session held on 26 October 2020. The formation of the SASA Committee represented a logical continuation of the work of the Programme Organizing Committee on *The Serbian Question from the 19th to the 21st Century* (Srpsko pitanje: od 19. do 21 veka), established at the initiative of the SASA Presidency in 2019. All members of the Programme Organizing Committee became the members of the SASA Committee for the Serbian Question.

The Committee was established for the purpose of carrying out interdisciplinary and scientifically based research into a number of issues and areas of vital interest for Serbia, including the question of Kosovo and Metohija, the status of the Serbian people in the neighbouring countries, protection of cultural and artistic heritage and determination of its Serbian identity, historical, constitutional law, economic and religious aspects, geostrategic orientation, question of language and demographic question, corpus of human rights, security, international relations, intangible heritage, resources and the like.

During the year, four meetings were held (two of them in the status of a SASA committee). It was discussed about the organization of the scientific meetings “Secession Through the Eyes of Domestic and International Law and Its Political Consequences” (Secesija sa stanovišta unutrašnjeg i međunarodnog prava i njene političke posledice) (the meeting was scheduled for April, but was held in July); “Serbian Literature in Slavic and Non-Slavic Literary History” (Srpska književnost u slovenskim i neslovenskim istorijama književnosti) and “Protection, Preservation and Affirmation of Serbian Cultural Heritage in Kosovo and Metohija” (Zaštita, očuvanje i afirmacija srpskog kulturnog nasledja na Kosovu i Metohiji) (planned for November, but postponed to 2021). It was also discussed about the organization of the meeting “Power Plants and Resources in Kosovo and Metohija” (Energetska postrojenja i resursi na Kosovu i Metohiji), which is planned for 2021.

DEPARTMENT OF LANGUAGE AND LITERATURE

ONOMASTIC COMMITTEE

(Academician Aleksandar Loma)

1. During the past year, due to the epidemiological situation, field research was not planned.

2. Volume XXVII of *Onomatological Contributions* (Onomatološki prilozi) for 2020 was prepared and peer reviewers were appointed at the previous session of the Department of Language and Literature. Collecting papers for Volume XXVIII will begin.

3. At the beginning of the year, Volume XXV of **Onomatological Contributions** for 2018 and Volume XXVI of **Onomatological Contributions** for 2019 were published.

4. Work continued on the *Dictionary of Old Serbian Names* (Rečnik starosrpskih ličnih imena).

5. In the second half of the year, the preparation of materials (from Kosovo and Metohija) for scanning began and was completed. Two undergraduate student of the Faculty of Philology (Jovana Todorić and Matija Nešović) were given this assignment. Nearly 250,000 onomastic data from Kosovo and Metohija were mechanically singled out, numbered and prepared for scanning. The SASA Audiovisual Archive and Digitization Centre began scanning the prepared material.

6. Mirjana Petrović-Savić made a complete list of research points in Kosovo and Metohija, including an accurate number of onomastic data on each of them.

COMMITTEE FOR THE DICTIONARY OF THE SERBO-CROATIAN LITERARY LANGUAGE AND VERNACULARS

(Academician Milosav Tešić)

In 2020, the work on the 21st volume of the *SASA Dictionary* (Rečnik SANU) included the final reading, technical editing and preparation of the manuscript for printing. This volume was printed at the end of the year.

The manuscript of the 22nd volume of the *SASA Dictionary* underwent all basic processing stages and almost all redaction stages. A larger number of sections of this volume underwent the first and second co-redaction stage.

The sections to be entered in the 23rd volume of the *SASA Dictionary* also underwent the basic processing stage. The work on the 24th volume also began.

During April and May 2020, the excerption of secondary school textbooks and manuals was carried out under conditions of working from home with the aim of updating the professional terminology in the sources for the compilation of the *SASA Dictionary*. A total of 21,946 electronic cards were processed and submitted for use. The lexical material from the mentioned volumes will be used in the compilation of the subsequent dictionary volumes, starting from the 22nd volume.

COMMITTEE FOR RESEARCH IN LITERARY HISTORY

(Academician Zlata Bojović)

The proceedings of the round table titled **The Development of Poetics in Serbian Literature. – Serbian Literary Theory** (Razvoj poetike srpske književnosti. - Teorija književnosti kod Srba), which was held in late 2019, was published.

The proceedings of the scientific meeting titled *The Periodization of New Serbian Literature – On the Occasion of the 150th Anniversary of the Birth of Pavle Popović* (Periodizacija nove srpske književnosti povodom 150. godišnjice rođenja Pavla Popovića), which was organized by the Committee, were presented at the SASA Library Forum on 25 February 2020. The Committee members also participated in the presentation.

During 2020, the Committee was involved in the preparation of two scientific meetings scheduled for 2020. The round table titled *Serbian Writers and the Serbian Theatre up to the First World War* (Srpski književnici i srpsko pozorište do Prvog svetskog rata), scheduled for 25 March 2020, was completely prepared, but had to be postponed due to unfavourable circumstances. The

scientific meeting dedicated to *Serbian Literature in Literary History – On the Occasion of the 225th Anniversary of the Birth of Pavel Jozef Šafarik* (Srpska književnost u istorijama književnosti – povodom 225. godišnjice rođenja Pavla Josifa Šafarika), which was supposed to be held within the programme of the Committee for the Serbian Question, also had to be postponed to 2021.

Reports of the Committee members:

Zlata Bojović – President of the Organizing Committee of the Ceremonial Session Marking *800 Years of the Nomocanon of Saint Sava* (800 godina Zakonopravila Svetog Save) and participant in the appropriate programme, which was held on 30 October 2020; President of the Organizing Committee of the Round Table on *Serbian Writers and the Serbian Theatre up to the First World War* (Srpski književnici i srpsko pozorište do Prvog svetskog rata) (it was postponed to 2021) and the scientific meeting titled *Serbian Literature in Literary History – On the Occasion of the 225th Anniversary of the Birth of Pavel Jozef Šafarik* (Srpska književnost u istorijama književnosti povodom 225. godišnjice rođenja Pavla Josifa Šafarika) (postponed to 2021).

Anthology *Ten Centuries of Serbian Literature* (Marin Držić. Antologija Deset vekova srpske književnosti), Vol. 11, Novi Sad: Izdavački centar Matice srpske, 2020, 323 p. – Foreword: *Dramas of Marin Držić* (Predgovor: *Drame Marina Držića*), pp. 7-21.

Dubrovnik Renaissance Tragedies and Reality (Dubrovačke renesansne tragedije i stvarnost) in the proceedings: **Great Topics of Serbian Literature** (Velike teme srpske književnosti), Naučni sastanak slavista u Vukove dane (1971–2019) (Scientific Meeting of Slavists During Vuk's Days /1971–2019/): Belgrade, 2019, pp. 489–497.

Gentleman Vuk Branković (Gospodin Vuk Branković) in: Stevan Ješević, **Gentleman Vuk Branković** (Gospodin Vuk Branković), Belgrade, 2020, pp. 309–315.

Andro Paoli, an Eighteenth-Century Dubrovnik Poet (Andro Paoli dubrovački pesnik XVIII veka), **Contributions to Literature, Language, History and Folklore** (Prilozi za književnost, jezik, istoriju i folklor): Belgrade, 2020, LXXXVI, pp. 81–95.

On the Occasion of the 100th Anniversary of the Oldest Serbian Literary History Journal, Contributions to Literature, Language History and Folklore 1021–2020 (Uz stogodišnjicu najstarijeg srpskog književnoistorijskog časopisa, Prilozi za književnost, jezik, istoriju i folklor 1921–2020), **Bratstvo**, Društvo “Sveti Sava”: Belgrade, 2020, XXIV, pp. 13–18.

Miroslav Pantić, *Pavle Popović, Chapter One* (Pavle Popović, Glava prva), **Contributions to Literature, Language, History and Folklore** (Prilozi KJIF), [ed. Zlata Bojović], Belgrade, 2020, LXXXVI, pp. 7–32.

Staniša Tutnjević

The Ideology of Yugoslavism in Literature. **The End of the First World War and the Creation of the Yugoslav State** (Ideologija jugoslovenstva u književnosti. Kraj Prvog svjetskog rata i nastanak jugoslovenske države), Collection of Papers, Banja Luka: ANURS, 2020, pp. 279–294.

Dr. Slavko Gordić

Gordić, Slavko, **After the Edge** (Posle ruba). Novi Sad: Kulturni centar Novog Sada, 79 p.

Gordić, Slavko, **Among Their Own Kind** (Medju svojim). Novi Sad: Akademska knjiga, 205 p.

Professor Dr. Ljiljana Juhas-Georgievska

This year, my scientific interests were focused on two topics: *Autopoetic Statements of Writers in the Serbian Hagioraphies of the 13th and 14th Centuries* (Autopoetički iskazi pisaca u srpskim životima XIII i XIV veka) and *Epistle as a Literary Genre in Serbian Medieval Literature* (Poslanica kao književni žanr u srpskoj književnosti srednjeg veka). I am preparing more extensive studies, so that I will continue working on these topics in the coming year.

This year, I published the following works:

Stefan the First-Crowned in the Eyes of 13th Century Serbian Writers (Stefan Prvovenčani u vidjenju srpskih pisaca XIII veka), in the collection of papers **Stefan the First-Crowned and His Times** (Stefan Prvovenčani i njegovo doba) (A. Ristović, editor-in chief, I. Komatina, edition editor). Belgrade: Istorijski institut, pp. 429–445.

Marko Nedić

Critical Descriptions. Essays on Serbian Prose (Kritički opisi. Oglеди o srpskoj prozi), Novi Sad: Akademska knjiga, 249 p.

Dušan Djurović, *The Lord of the Mills on the Zeta. Selected Short Stories* (Gospodar vodenica na Zeti. Izabrane pripovetke). Selection and Afterword by M. Nedić, Belgrade: Službeni glasnik, 423 p.

“Pavić’s Two Puzzles” (Dve Paićeve zagonetke), **Letopis Matice srpske**, Year 196, Vol. 505/3, pp. 302–313.

“A Critical Retrospective of Ideological Reading of Serbian Literature” (Kritička retrospektiva ideološkog čitanja srpske književnosti), **Letopis Matice srpske**, Year 196, Vol. 506/4, pp. 477–486.

“A Synthesis of Epic Inspiration and Modern Experience of the World” (A Critical Text About Stojan Djordjić’s Monograph *Ivo Andrić – Homer of Modern Times – Sveske Zaduzbine Ive Andrića* (Sinteza epskog nadahnuća i modernog doživljaja sveta /Kritički tekst o monografiji Stojana Djordjića *Ivo Andrić – Homer modernog doba. – Sveske Zaduzbine Ive Andrića*)). Year 39/37, pp. 311–317.

Professor Dr. Zorica Nestorović

She participated in the following activities of this Committee: peer reviewer of four scientific papers for the proceedings of the Round Table on “The Development of Poetics in Serbian Literature – Serbian Literary Theory” (Razvoj poetike srpske književnosti – Teorija književnosti kod Srba); member of the Organizing Committee of the Round Table on “Serbian Writers and the Serbian Theatre up to the First World War” (Srpski književnici i srpsko pozorište do Prvog svetskog rata).

She is the leader and editor of the scientific project titled “Critical Edition of Ivo Andrić’s Works” (Kritičko izdanje dela Ive Andrića) published by the Ivo Andrić Foundation; editor of five volumes of the Third Series “Critical Edition of Ivo Andrić’s Works” (printing was finished in March 2020): *A Secluded House I* (Kuća na osami I), *A Secluded House II* (Kuća na osami II), *Ex Ponto*, *Anxieties* (Nemiri), *Lyrics* (Lirika)

Goran Maksimović

“Cities of Milutin Uskoković” (Gradovi Milutina Uskokovića), Preface to the book **Milutin Uskoković**, prepared for printing: Goran Maksimović, Anthological Edition “Ten Centuries of Serbian Literature” (Deset vekova Srpske književnosti), Vol. 134, Novi Sad: Izdavački centar Matice srpske, 2020, pp. 7–22.

“The Great War in the Diary Notes of Aleksandar B. Cvetković (1916–1919)” (Veliki rat u dnevničkim zapisima Aleksandra B. Cvetkovića /1916–1919/), **Ishodišta**, Year VI, No. 6, Timisoara-Niš, Association of Serbs in Romania, Timisoara, and the Faculty of Philosophy, University of Niš, 2020, pp. 183–190.

“Travelogue Prose of Rade Drainac”, **Rade Drainac – New Reading** (Putopisna proza Rada Drainca – novo čitanje), Collection of Papers, SASA Branch in Niš – Rade Drainac National Library, Prokuplje – Faculty of Philosophy in Niš, Niš–Prokuplje, 2020, pp. 31–51.

“Reality and Story in the Diary Notes of Vladeta Jerotić” (Stvarnost i priča u dnevničkim zapisima Vladete Jerotića), Preface in the book: **Vladeta Jerotić, Diary (1938–1945)** (Vladeta Jerotić, Dnevnik /1938–1945), 2nd Edition, Belgrade: Vladeta Jerotić Foundation–Domus editoria Ars Libri, 2020, pp. 7–29.

“Slobodan Jovanović as a Literary Critic”, **Slobodan Jovanović – Life, Work, Times** (Slobodan Jovanović kao književni kritičar, Slobodan Jovanović – Život, delo, vreme), Belgrade: SASA Department for Language and Literature and Department of Social Sciences, 2020, pp. 351–373.

**COMMITTEE FOR THE ETYMOLOGICAL DICTIONARY
OF THE SERBIAN LANGUAGE**

(Academician Aleksandar Loma)

The project work plan for 2020 was only partially fulfilled, because many planned activities had to be postponed due to the Covid-19 pandemic.

a) Further work on Volume IV of the Etymological Dictionary of the Serbian Language (Etimološki rečnik srpskog jezika) (Бл-бљ) included the following activities:

- The basic processing of the remaining entries – a total of 14.83 author's sheets (M. Vučković, J. Janković, M. Kalezić, O. Ligorio, Ž. Stepanović);
- The first redaction of the entries – a total of 6 author's sheets (A. Loma).

b) Further work on Volume I of the *Reference Etymological Dictionary of the Serbian Language* (Priručni etimološki rečnik srpskog jezika) (A–O) included the following activities:

- The basic processing of the remaining entries – a total of 7.35 author's sheets (M. Bjeletić, J. Vlajić-Popović, A. Loma, S. Petrović);
- The first redaction of the letters И, Ј, Љ, Н, Њ (M. Bjeletić, J. Vlajić-Popović, S. Petrović);
- The second reduction of the letters Г, Д (Vlajić-Popović).

c) The excerption and basic lexicographic processing of the *Mining Law* (Zakon o rudnicima) enacted by Despot Stefan Lazarević: 12.67 author's sheets (A. Loma, Ž. Stepanović).

d) Further digitization work (M. Gmitrović, S. Manojlović, S. Petrović).

The plan for shifting to work in a digital work environment was made; the shifting phases were defined and the activities in each phase were broken down; the proposal for the EDSL entry structure as well as the proposal for the database structure and type, and the type of input data mask were prepared. In accordance with the plan, the following activities, which fall under the first two items of the plan, were carried out:

1. Cooperation with Dr. Velibor Ilić was established. He developed OCR software for the recognition of non-standard Cyrillic characters with diacritics and web application for its use, needed primarily for the digitization of dialectal dictionaries and texts. For the purposes of creating the program, the associates of the Section actively cooperated with the engaged IT expert

(defining jobs and needs, making a list of non-standard Cyrillic characters, consultations and coordination of work);

2. Two lists of dictionaries to be scanned were made in order to be OCR-ed in the prepared program – one that includes SASA editions (which should be scanned in the SASA Audiovisual Archive and Digitization Centre) and the other that includes the editions of other institutions;

3. Trial scans were made in the SASA Audiovisual Archive and Digitization Centre for the purpose of software development and testing;

4. Scanning outside the SASA Audiovisual Archive and Digitization Centre was also organized;

5. Lenka Bajčetić, MSc, was engaged for OCR software testing and digitization cooperation (she graduated with a degree in Computer Science from the Faculty of Sciences and Mathematics, University of Belgrade, and completed a master degree in Digital Humanities in the Netherlands).

e) Continuation of the excerption of bibliographical sources and etymological literature.

f) O. Ligorio organized the Winter School in Indo-European Linguistics at the Department of Classics, Faculty of Philosophy in Belgrade, from 10 to 14 February, where he taught two courses: *Advanced Class in Greek Historical Phonology* and *Introduction to Old Phrygian*.

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1. Бјелетић, Марта: К вопросу о происхождении праслав. **kovylъ / *kovylъ* ‘Sti-ra repnata’, **Јужнословенски филолог** 76/1, Београд 2020, 41–55.
 2. Vlajić-Popović, Jasna: Словенске ‘заставе’ међу словенским заставама (Како доказати калк?), Mariola Jakubowicz, Szymon Pogwizd, Beata Raszevska-Żurek (eds.), **Studia etymologiczne poświęcone Prof. Franciszkowi Sławskiemu z okazji setnej rocznicy urodzin**, Warszawa: Instytut Slawistyki PAN 2019 [2020], 261–276 (Prace Slawistyczne. Slavica).
 3. Vlajić-Popović, Jasna: Le terme *zadruga* «famille patriarcale élargie» — ses origines et son expansion : approche linguistique, **Revue des études slaves** XCI-3, 2020, 261–276.
 4. [Vlajić-Popović, Jasna – contributor from Serbia] **Linguistic bibliography / Bibliographie linguistique for the year 2019** (and supplement for previous years). Published by: The Permanent International Committee of Linguists under the auspices of the International Council for Philosophy and Humanistic Studies. Leiden / Boston : Brill, 2020, 734–760 pp.
 5. Loma, Aleksandar: Sanctifying and sanctioning: the Serbo-Croatian *osveta, osvetiti se* reconsidered // Mariola Jakubowicz (red.), **Etymologica Slavica. Studia Etymologiczne Poświęcone Prof. Franciszkowi Sławskiemu z Okazji Setnej Rocznicy Urodzin**, Prace Slawistyczne. Slavica 146, Instytut Slawistyki Polskiej Akademii Nauk, Fundacja Slawistyczna 146, Kraków 2019 [2020], 181–190.
 6. Loma, Aleksandar: Zum idg. Adjektivsuffix **-uent-* im Thrakischen und Slavischen // **Linguistique balkanique** LIX 1, 2020, 62–75.

7. Loma, Aleksandar: Ein Wort aus der Silberzeit. Zur Bezeichnung des Silbers im Germanischen, Baltischen und Slavischen, **Diachronie – Ethnos – Tradition**, Festgabe für Anna Kretschmer, hrsg. von J. Grković Major, N. B. Korina, S. M. Newerkla, F. B. Poljakov, S. M. Tolstaja, Brno, 3–29.
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COMMITTEE ON FOLK LITERATURE

(Academician Nada Milošević-Dorđević)

Project: **DIGITIZATION OF FOLK LITERARY TEXTS FROM THE ETHNOGRAPHIC COLLECTION OF THE SASA ARCHIVES**

Work continued on the project relating to the digitization (photo scanning) of folk literary texts from the Ethnographic Collection of the SASA Archives, with the expert assistance of engineer Branislav Tomić. The scans were computer-processed and the files were labelled according to the signatures. The scans were entered into the SETNO database. The photographs of individual texts with their titles and pagination were excerpted. The Committee entrusted five associates (doctoral and master students at the Department of Serbian Language with South Slavic Literature, Faculty of Philology) with decoding and retyping the material.

One part of Collection No. 55 — Mileusnić Sima, year 1900: 788 p. (processed 500 p.)

Collection No. 56 — Pejić Stevan, year 1900: 56 p.

Collection No. 62 — Vrčević Vuk, year 1900: 493 p.

The material has 1,049 pages.

Lidija Delić

“Turkish Woman: A Woman in the Web of Epic Poetry and a Stereotype About the Other” (Turkinjica: žena u mreži epske poetike i stereotipa o Dugom). **Contemporary Serbian Folkloristics VII** (Savremena Srpska folkloristika VII). Kruševac: Association of Serbian Folklorists – Svetozar Marković University Library, 2020, pp. 361–378.

Miodrag Matićki

“*Danica* as a National Mainstay”, **Danica** Serbian National Illustrated Calendar, for 2020 (*Danica* kao nacionalno uporište”, **Danica**, srpski narodni ilustrovani calendar, za 2020.), 27th Year, Belgrade: Vukova zadužbina (Vuk’s Endowment), 2020, pp. 9–16.

“Golub Dobrašinović on the Relationship Between Vuk and Njegoš” (Golub Dobrašinović o odnosu Vuka i Njegoša), *Danica*, Vukova zadužbina, 2020, pp. 45–53.

Ljubinko Radenković

“Men’s Side and Women’s Side in Serbian Folk Culture” (Muška i ženska strana u narodnoj kulturi Srba), **Danica for 2020**, Belgrade: Vukova zadužbina, pp. 102–113.

“The Badnjak among the Balkan Peoples” (Badnjak kod balkanskih naroda), **Anali**, Ogranak SANU (SASA Branch), Novi Sad: 2020, pp. 58–69.

Nemanja Radulović

Underground Current 2. Serbian Literature and Esoterism 1957–2000 (Podzemni tok 2. Srpska književnost i ezoterizam 1957-2000), Belgrade: Službeni glasnik, 2020.

Snežana Samardžija

Numbers in Serbian Folklore (Brojevi u srpskom folkloru). Poetika Series. Belgrade: Albatros plus, 2020.

“The Cycle of Tales About a Persecuted Girl” (Krug pripovedaka o progonjenoj devojci). **Great Topics of Serbian Literature. Scientific Meeting of Slavists During Vuk’s Days** (Velike teme Srpske književnosti. Naučni sastanak slavista u Vukove dane), Belgrade: International Centre for Slavic Studies, 2019 (published in 2020), pp. 213–223.

“The Kosovo Maiden’s White Hand. The Image of the Kosovo Maiden in Serbian Folk Poetry” (Kosovkina ruka bela. Lik Kosovke devojke u srpskoj narodnoj poeziji). **Contemporary Serbian Folkloristics VII** (Savremena srpska folkloristika VII), Kruševac: Serbian Folklore Association, 2020, pp. 115–143.

OLD SLAVONIC COMMITTEE

(Academician Jasmina Grković-Mejdžor)

In cooperation with the “Djordje Zečević” Fund, the Old Church Slavonic Committee continued the preparatory work on the *Bibliography of the Cyrillic Script* (Bibliografija ćirilčnog pisma) for which, in an earlier period, Gordana Radojčić-Kostić (1950–2016), the long-time Director of the SASA Bibliographical Section, collected biographical data. The bibliography covers the period 1538-2015. The acquisition of materials was completed with the financial assistance of the Committee.

Work continued on the preparation of the volumes *An Introduction to Philology* (Uvod u filologiju) and *The Philology of the Serbian People, Notes from Ljubomir Stojanović’s Lectures at the Grand School, School Year 1895/96* (Filologija srpskog naroda. Beleške sa predavanja na Visokoj školi, školske 1895/96) (prepared by Academician Jasmina Grković-Major and Professor Dr. Viktor Savić).

**COMMITTEE FOR THE COMPARISON OF THE SERBIAN
LANGUAGE WITH OTHER LANGUAGES**

(Corresponding Member Ljubinko Radenković)

The project titled *Parallel Electronic Corpus of the Serbian and Russian Languages* (Paralelni elektronski korpus srpskog i ruskog jezika) is underway. The project leader on the Serbian side is Dr. Nenad Ivanović, Scientific Associate at the SASA Institute for the Serbian Language, while the project leader on the Russian side is Dmitry Sichinava, Senior Scientific Associate at the V.V. Vinogradov Russian Language Institute of the Russian Academy of Sciences. The aim of the project is to create a medium-sized electronically searchable parallel corpus of the Serbian and Russian languages. Once created, the corpus can be continuously enriched with different types of texts, thus improving its representativeness needed for linguistic research.

In 2020, the first phase of the project was completed, which means that all works constituting the Serbian and Russian corpora were collected. It was a question of about 80 books, literary and other texts, in both Serbian and Russian.

Work continued on the project titled *The Creation of an Electronic Base of Terms from Serbian and Polish Lexicology and Phraseology Within the iSybisslaw System* (Izrada elektronske baze termina iz leksikologije i frazeologije srpskog i poljskoj jezika u okviru sistema *iSybisslaw*), in cooperation with the Institute of Slavic Studies of the Polish Academy of Sciences in Warsaw.

The project titled *Mythological Foundations of Slavic Folklore* (Mitološke osnove slovenskog folklor) is underway. The project leader is SASA Corresponding Member Ljubinko Radenković, while his project associate is Dr. Dragana Djurić, Research Associate at the SASA Institute for Balkan Studies. In 2020, the project leader's three works and one folkloristics book review were published, while his other two works were submitted for printing. The planned participation in a scientific meeting in Saint Petersburg was postponed to 2021 due to the Covid-19 pandemic.

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1. Radenković Ljubinko, “Об одном общеславянском фольклорном мотиве: повитуха принимает роды у чертей” // **Diachronie – Ethnos – Tradition: Studien zur slawischen Sprachgeschichte. Festgabe für Anna Kretschmer.** Herausgeben von Jasmina Grković-Major, Natalia B. Korina, Stefan Michael Newerkla, Fedor B. Poljakov, Svetlana M. Tolstaja. Brno, 2020, pp. 47–55.
 2. Radenković Ljubinko, “Men's Side and Women's Side in Serbian Folk Culture” (Muška i ženska strana u narodnoj kulturi Srba) // **Danica** for 2020, Belgrade: Vukova zadužbina 2020, pp. 102–113.
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INDIVIDUAL PROJECTS

Project: **LINGUISTIC SLAVISTICS AS THE OBJECT OF SCIENTIFIC CRITICISM AND HISTORIOGRAPHY**

(Academician Predrag Piper)

During his work on individual project titled LINGUISTIC SLAVISTICS AS THE OBJECT OF SCIENTIFIC CRITICISM AND HISTORIOGRAPHY (Lingvistička slavistika kao predmet naučne kritike i istoriografije) the research results were published in six monographs and dozens of articles. His monographs include: *Contributions to the History of Serbian Slavistics – Bibliographic Materials* (Prilozi istorije srpske slavistike – bibliografska građa), Belgrade: Čigoja, 2011; *Linguistic Russistics: Studies and Articles* (Lingvistička rusistika: studije i članci), Belgrade: Faculty of Philology, 2012; *Linguistic Slavistics: Studies and Articles* (Lingvistička slavistika: studije i članci), Belgrade: Society of Slavists of Serbia, 2014; *Contributions to the History of Serbian Linguistic Slavistics. The Second Half of the 20th Century* (Prilozi istoriji srpske lingvističke slavistike: Druga polovina XX veka), Belgrade: Čigoja, 2018; *Serbian Linguistic Slavistics of the Second Half of the 20th Century* (Srpska lingvistička slavistika druge polovine XX veka), Berlin: GlobeEdit Publishing. Printed by Schatungsdienst Lange o. H. G., 2019.

Project: **SERBO-GERMAN LITERARY AND CULTURAL TIES**

(Corresponding Member Slobodan Grubačić)

He analyzed and carried out comparative research on political, artistic and cultural relations, and coordinated the work of the project participants. He is a member of the Committee for the Serbian Language and Literature in Comparison with Other Languages and Literatures and member of the project titled “Serbian-Macedonian Literary Ties in the 19th and 20th Centuries” (Srpsko-makedonske književne veze u 19. i 20. veku) (S. Grubačić and M. Pantić). He is a member of the Governing Board of the Institute for the Serbian Language. He is also an active member of the Salzburg-based European Academy of Sciences and Arts, German Schiller Society (*Deutsche Schillergesellschaft*) in Marbach and European Cultural Centre in Venice. He is a member of the Commission for Acquiring Scientific Titles of the Ministry of Education, Science and Technological Development of the Republic of Serbia. He is a member of the Editorial Board of the journal “Prilozi za

književnost, jezik, istoriju i folklore” (Contributions to Literature, Language, History and Folklore). He published the book *The Bells of Ivo Andrić* (Zvona Ive Andrića), Belgrade: Službeni glasnik, 2020, 150 p. He wrote a peer review of the collection of scientific papers “The Development of Poetics of Serbian Literature – Serbian Literary Theory” (Razvoj poetike Srpske književnosti – Teorija književnosti kod Srba).

ACADEMIC COMMITTEE FOR DIALECTOLOGICAL ATLASES

(Academician Aleksandar Loma)

The main and only task of the SASA Committee for Dialectological Atlases is the elaboration of dialectological atlases, namely the work on the *Serbian Dialectological Atlas* (SDA) (Srpski djatološki rečnik /SDA/), domestic sector of the *European Linguistic Atlas* (ALE) (Evropski lingvistički atlas /ALE/) and *General Slavic Linguistic Atlas* (OLA) (Opšteslovenski lingvistički atlas /OLA/).

European Linguistic Atlas

Our representatives on the ALE Editorial Board (A. Loma and S. Petrović) were not invited to the 53rd Meeting of the Editorial Board of the *European Linguistic Atlas*, which otherwise was not held due to the pandemic.

General Slavic Linguistic Atlas

In 2020, in pursuing its responsibilities, determined at the regular annual session of the International Commission and International Working Group for OLA within the International Committee of Slavists, held in Krakow (Poland), 22-29 September 2020, the Serbian National Commission for OLA carried out a significant number of its tasks.

The verification of the national materials in the indices and cards for the volumes under preparation:

1. It verified the indices and cards for the volume *Степени родства* for the Bulgarian National Commission (classic cards – 70, indices – 56; 10 semantic cards and 10 documents with legends and materials for these cards; *заемки* – 4 cards with loanwords and 4 documents with the materials for these cards);
2. It verified the indices and cards for the volume *Транспорт. Народная техника. Пути сообщения* for the Ukrainian National Commission (the verification of 28 sets and 12 cards);

3. It prepared and submitted 51 indices for the morphosyntactic volume *Именице* for the Slovak National Commission, and also made additions to the comments (4 questions for 4 research points from Serbia and 1 question for 7 research points from Montenegro);

4. It started the verification of the material for the phonetic volume for the Slovenian National Commission (*y – 35 cards, while the material for *i and *u will be verified after being received);

5. The material for the volume *Придеви* (126 questions) for the Croatian National Commission was prepared and will be sent to it immediately after verification;

6. The Lusatian National Commission was sent the clarification of certain illegible data for its lexical volume *Гигиена и медицина* (7 questions from 6 research points);

7. The etymological part of our team made the morphological comments on 71 questions related to the volume *Метеорологија и измерение времени* for the OLA Commission of Bosnia and Herzegovina;

8. The literary names for the questions relating to all thematic fields were entered in the electronic version of the OLA Questionnaire and will be submitted immediately after their verification and corrections;

9. The Serbian National Commission was assigned to prepare several trial cards (different types) for the volume *Горное овцеводство*. This year, all remaining material was acquired (either for all questions or for eight selected ones). We received the morphonological comments from three commissions – Polish, Czech and Slovak. The Slovak National Commission submitted the comments on the selected questions.

This year – due to the pandemic – it was not possible to make the necessary field additions and verifications of the materials from certain Serbian OLA research points after which our materials for the questions from the OLA Questionnaire could be presented in the form of Excel tables.

Serbian Dialectological Atlas

The epidemiological situation made it impossible to carry out field research in order to supplement and verify the materials for the *Serbian Dialectological Atlas* (Srpski dijalektološki atlas). However, the reviewed materials from all Herzegovinian-Krajina research points were sorted out according to the observed problems. The survey of the materials from the Zeta-Sjenica research points, which started a long time ago, was completed. The preliminary survey of the Kosovo-Resava materials converted into the indices for 165 questions related to *Volume I of the SDA* and the lexemes marked previously for verification. Some progress was made in determining

the “Kopaonik neoacute” area in northwestern Serbia, since its existence was determined in Jadar, Radjevina, Podgorina, Kolubara and Posavotamnava. Thus, it is quite certain that it is undoubtedly known at least in some idioms that preserve the peculiarity of the old yat sound.

**ACADEMIC COMMITTEE FOR THE STUDY OF REPRESSION
(GOLI OTOK AND OTHER CAMPS AND PRISONS)**

(Academician Dragoslav Mihailović)

In 2020, the Committee members held several meetings dedicated to the publishing of the collection of papers presented at the scientific forum titled “Yugoslavia and the Cominform (1948–1956)” (*Jugoslavija – Informbiro /1948–1956/*), which was held in the first half of 2019. At the last meeting it was stated that most of the papers of their colleagues from the country and abroad had arrived and that it would be necessary to start a peer review of these papers and their preparation for printing. During 2021, the Committee members will work on the preparation and publishing of the mentioned lectures. At the same time, as in 2019, work will continue on the bibliography of the papers dedicated to Goli otok and political repression. We plan to study and scan the archival materials relating to Goli otok in 2021.

In 2020, the Committee had no funds, which slowed down its work on the bibliography. In 2021, it will be necessary to plan the funds for publishing the collection of lectures and paying for professional services, including the preparation of bibliography and scanning of archival materials.

**ACADEMIC COMMITTEE FOR THE HISTORY
AND PUBLICATION OF ACCESSION SPEECHES**

(Academician Miro Vuksanović)

During 2020, due to the outbreak of the Covid-19 pandemic and the measures taken to protect the health of its members and employees, the SASA had to make its decisions online: in February (the adoption of the 2020 Committee Work Plan) and in May (approval for printing the first volume of *Accession Speeches by Serbian Academicians /1886–1947/* (*Pristupne besede srpskih akademika /1886–1947/*)).

Despite the unfavourable circumstances the work envisaged in the 2020 Committee Work Programme was completed in its entirety.

1. In November 2020, the first volume in the Series *Accession Speeches by Serbian Academicians (1886–1947)* (Pristupne besede srpskih akademika /1886–1947/), with 492 pages and colour illustrations, was published. It begins with the introductory word by the SASA President, Academician Vladimir S. Kostić, and the foreword by the Series Editor, Academician Miro Vuksanović. There follows the list of all formal members of the Serbian Royal Academy, including the data on their membership election and accession speeches. It is followed by the accession speeches given by the first sixteen formal members of the Serbian Royal Academy, who were appointed by King Milan, and solemn declarations made by five members who were elected at the first session: Josif Pančić, *Message* (Poslanica), Dimitrije Nešić *A View on Leibniz's Infinitesimal Method* (Pogled na Lajbnicovu infinitezimalnu metodu), Ljubomir Klerić, *On the Compensation of the Vertical Pendulum* (O kompenzaciji vertikalnog klatna), Jovan M. Žujović, *On the Volcanoes and Last Seas in Serbia* (O vulkanima i poslednjim morima u Srbiji), Stojan Novaković, *Fief Holders and Hereditary Estate Holders /Spahis and Chitluk-Sahibs/* (Pronijeri i baštinici / spahije i čitluk-sahibije/), Milan Kujundžić, *Will and Freedom* (Volja i sloboda), Svetislav Vujović, *A View on the Poetry of New Serbian Literature Until Branko Radičević* (Pogled ba poeziju novije stpske književnosti do Branka Radičevića), Svetomir Nikolajević, *On the 8th and 9th Century Reformation in Byzantium and Its Influence on Arts, Schools and Literature*, (O reformaciji VIII i IX veka u Vizantiji i o njenom uticaju na veštine, škole i književnost), Čedomilj Mijatović, *Lady Jela Balšić, a Daughter of Prince Lazar: A Historical Sketch* (Gospodja Jela Balšićeva, kći cara Lazara: istorijska skica), Milan Dj. Milićević, *The National Library in Belgrade* (Narodna biblioteka u Beogradu), Ljubomir Kovačević, *Several Questions About Stefan Nemanja* (Nekolika pitanja o Stefanu Nemanji), Pantelija Srećković, *A Debate on Konstantin Teh* (Rasprava o Konstantinu Tehu), Ljubomir P. Nenadović, *A View on Poetry and Its Impact on Humanity* (Pogled na poeziju i njen uticaj na čovečanstvo), Matija Ban, *About Ivan Gundulić* (O Ivanu Gunduliću), Mihailo Valtrović, *A View on the Old Serbian Church Architecture* (Pogled na staru srpsku crkvenu arhitekturu) and Davorin Jenko, “*Milan*” *Overture* (Uvertira “Milan”), and the solemn declarations made by Franc Miklošič, Vatroslav Jagić, Valtazar Bogišić, Ilarion Ruvarac and Pavle (Paja) Jovanović. The members are deployed in the specialized departments ehronologically, that is, according to the election date. The text about each of them includes a photograph, facsimile signature and basic data.

2. According to the established editorial concept, the second volume in the series *Access Speeches by Serbian Academicians (1996 – 1947)* was

prepared. The volume contains the accession speeches and data on 37 formal members of the Serbian Royal Academy elected from 1890 to 1919:

a) Accession speeches by Sima Lozanić, Jovan Gligorije Geršić, Nićifor Dučić, Milutin I. Garašanin, Jovan Dj. Avakumović, Vladan Djordjević, Milan Jovanović Morski, Jovan Mišković, Jovan Turoman, Ljubomir Stojanović, Pera P. Djordjević, Jovan Jovanović Zmaj, Jovan Cvijić, Mihailo Petrović Alas, Mihailo V. Vujić, Simo Matavulj, Bogdan Gavrilović, Jovan N. Tomić, Djordje Pavlović, Slobodan Jovanović, Sava Urošević and Bogdan Popović.

b) Reproductions of works by three academicians – the painters Pavle Paja Jovanović, Stevan Todorović and Uroš Predić whose exhibitions were staged on the occasion of the proclamation of their election.

ACADEMIC COMMITTEE ON CULTURE AND ART

(Corresponding Member Svetislav Božić)

The SASA Committee on Culture and Art, in the jaws of the pandemic, hinted at the topics to be dealt with – views on literature, music and culture of dialogue, as well as the structure of its work. Due to their significant complexity, most of the mentioned areas should be fine-tuned over a longer time period.

It is hoped that the Covid-19-related circumstances will be somewhat more favourable in the coming period, that the topics of the works by the related committies and forums will be counterpointed through the work by the SASA Committee on Culture and that the main directions of cultural trends will be selected and mapped.

DEPARTMENT OF SOCIAL SCIENCES

COMMITTEE ON THE SOURCES OF SERBIAN LAW

(Academician Kosta Čavoški)

During the year it was worked intensively on the preparation of a study titled “Dušan’s Code and the Excerpts from the Later Epitimial Nomocanon in the 18th Century Romanian Translation” (Dušanov zakonik i izvodi iz mlađeg Epitimijnog nomokanona u rumunskom prevodu 18. veka) for publication. Professor Djordje Bubalo created two tables: “Index of the Articles of Dušan’s Code” (Indeks članova Dušanova zakonika) and “A Comparative Review of the Standard Numeration and the Numeration of Transcripts” (Uparedni pregled standardne numeracije i numeracije prepisa). Assistant Professor Dr. Viktor Savić prepared the Vocabulary and Register of Dušan’s Code and the Epitimial Nomocanon, based on the Kovilj and Sofia transcripts. Dr. Monica Huțanu prepared the register of the Romanian translation of Dušan’s Code and the Epitimial Nomocanon. Dr. Biljana Sikimić prepared the vocabulary of the Romanian translation of Dušan’s Code and the Epitimial Nomocanon. Professor Djordje Bubalo performed an editorial review of the whole manuscript. Academician Kosta Čavoški wrote the introductory note. The whole text was finished and submitted for its assembly and preparation for printing. The Committee plans to publish the study in the first half of 2021.

Since the focus of the work in 2020 was laid on the preparation of the Romanian translation of Dušan’s Code and the Epitimial Nomocanon, the preparation of the critical edition of the Abridged Syntagm was confined to the efforts to acquire the scanned transcripts of the Complete and Abbreviated Syntagm. Thanks to the Chilandar Monastery brethren, the scanned manuscripts of the Complete Syntagm (Hil. 299) and Abbreviated Syntagm (Hil. 301) were received. Despite the repeated appeals to the Bulgarian Academy of Sciences, including those at the highest level, the scanned manuscript of the Complete Syntagm (No. 70) has not yet been received.

Professor Djordje Bubalo found an unknown excerpt from the Complete Syntagm in manuscript Hil. 167.

Srđan Šarkić, Serbian Mediaeval Law on Wills and Succession, **Pravni zapisi**, God. XI, br. 1 (2020), Pravni fakultet Univerziteta „Union“, Beograd, 121–140.

Srđan Šarkić, Il contratto di *fenus* e la difesa dei debitori contro l'usura nel diritto medievale serbo (rigurdo all'influenza del diritto greco-romano), **Roma e America. Diritto romano comune, Rivista di diritto dell'integrazione e unificazione del diritto in Eurasia e in America Latina**, 40 (2019), Roma, 41–44.

Srđan Šarkić, A magyar jog alkalmazása Bánatban a német megszállás alatt 1941–1945, **Délvidéki (Vajdasági) magyar jogászok (Мађарско право у Војводини)**, Szerkesztette Várady Tibor (уредник Тибор Варади), Vajdasági Magyar Jogász Egylet (Војвођанско удружење мађарских правника), Ujvidék (Novi Sad), 2020, 263–276.

Stanoje Bojanin, The South Slavic Parish in Light of Stephen Gerlach's Travel Diary, **Voyages and Travel Accounts in Historiography and Literature**, Volume 1: **Voyages and Travelogues from Antiquity to the Late Middle Ages**, edited by B. Stojkovski, Trivent Publishing – Filozofski fakultet Novi Sad, Budapest – Novi Sad 2020, 265–294.

COMMITTEE ON PHILOSOPHY AND SOCIAL THEORY

(Academician Aleksandar Kostić)

During 2020, the Committee for Philosophy and Social Theory was involved in the preparation of the scientific meeting dedicated to Milan Grol within the cycle “Social and Political Thought in Serbia in the 19th and 20th Centuries” (Društvena i politička misao u Srbiji u XIX i XX veku). The scientific meeting should take place in the middle of 2021.

COMMITTEE FOR THE STUDY OF POPULATION

(Academician Časlav Očić)

THE REPORT WAS NOT SUBMITTED TO THE DEPARTMENT

COMMITTEE ON ECONOMIC SCIENCE

(Academician Časlav Očić)

THE REPORT WAS NOT SUBMITTED TO THE DEPARTMENT

**COMMISSION FOR THE STUDY OF LIFE
AND CUSTOMS OF THE ROMA**

(Academician Tibor Varady)

Rajko Djurić, a prominent Romologist and long-time Committee member passed away in early November 2020.

The Committee worked on the collection of papers for the proceedings of the scientific meeting titled “Rade Uhlik’s Contribution to Roma Linguistics and Culture” (Doprinos Radeta Uhlik lingvistici i kulturi Roma). The proceedings should come out in 2021.

It was planned to organize a round table titled “Social Inclusion of Roma” (Socijalna inkluzija Roma) in early May 2020. Corresponding Member Pavle Petrović and his associates prepared the document on “Roma Inclusion in Serbia: A Preliminary Analysis” (Inkluzija Roma u Srbiji: preliminarna analiza) which was sent to all members. Due to the outbreak of the Covid-19 pandemic, the holding of the round table was postponed until the spring of 2021.

The Committee planned to organize, together with the SASA Institute for Balkan Studies, the *14th International Conference on Romani Linguistics*, which would be held at the SASA on 10 and 11 September 2020. Due to the Covid-19 pandemic, this conference was postponed to 2021. Instead, a working meeting was held via Zoom application. During the year, preparations were made for holding a scientific conference titled “The Contribution of Roma to the Culture of the People in Serbia” (Doprinos Roma kulturi naroda u Srbiji). The areas and topics to be discussed at the conference were determined and so were its participants. The conference is scheduled for the end of October 2021.

Dragoljub Acković, **Bibijaće čhave, How and Why the Roma Celebrate Bibija** (Bibijaće čhave, kako i zašto Romi slave Bibiju), Belgrade: Kuća romske kulture, 2020.

Dragoljub Acković, **Never to Be Forgotten – a Book About the Suffering of Roma in Kosovo** (Da se ne zaboravi – knjiga o stradanju Roma na Kosovu), Belgrade: Kuća romske kulture, 2020.

Dragoljub B. Djordjević, **Sects and Cults** (Sekte i kultovi), 2nd Edition, Novi Sad, Niš, 2020.

Zlata Vuksanović Macura, I. Mišćević, K. Danilović, N. Matunović Milošević, I. Milivojević. **How to Legalize a House. A Guide to the Legalization of Family Houses in Roma Settlements in Serbia.** (Kako da ozakonite kuću. Vodič za ozakonjenje porodičnih kuća u romskim naseljima u Srbiji), Belgrade: Standing Conference of Towns and Municipalities (Stalna konferencija gradova i opština). Belgrade, 2020.

Zlata Vuksanović Macura, **Methodology to Assess Progress Made Against the Implementation of the Poznan Declaration Objectives**, Berlin: Open Society Institute, 2020, p. 53.

Svenka Savić, **Roma Health – A Handbook for Health Workers** (Zdravlje Roma – priručnik za zdravstvene radnike), 2020, 22 p.

**COMMITTEE FOR THE PREPARATION OF SCIENTIFIC
CONFERENCE "PHILOSOPHY BETWEEN THE EAST
AND THE WEST"**

(Academician Danilo Basta)

THE REPORT WAS NOT SUBMITTED TO THE DEPARTMENT.

**COMMITTEE FOR STUDYING MINORITIES
AND HUMAN RIGHTS**

(Academician Tibor Varady)

During the year, the Committee published the proceedings of two scientific conferences: **Human Rights in the 21st Century** (Ljudska prava u 21. veku) and **Gender Equality – from Equal Rights to Equal Opportunities** (Rodna ravnopravnost – od jednakih prava do jednakih mogućnosti).

The Committee collected the relevant papers and prepared the following volumes for publication: the proceedings of the round table on "Cultural Autonomy and Minority Self-Government" (Kulturna autonomija i manjinska samouprava), monograph marking the 30th anniversary of the Committee and proceedings of the round table on "Serbs in Romania – the Current Situation and Perspectives" (Srbi u Rumuniji – sadašnje stanje i perspektive).

The scientific conference titled "Thirty Years of the Implementation of the United Nations Convention on the Rights of the Child – Contemporary Aspects" (Trideset godina primene Konvencije Ujedinjenih nacija o pravima deteta – savremeni aspekti) was successfully organized on 10 December 2020. For epidemiological reasons it was held online.

Work continued on the topic about "Tzintzars in Serbia, Identity and Cultural Exchanges" (Cincari u Srbiji, identitet i kulturna razmena). In this connection, it is planned to publish the collection of papers whose working title is *About Tzintzars* (O Cincarima).

The presentation of the work of Serbian cultural and scientific institutions and organizations from the neighbouring countries on the SASA premises. At the end of 2020, as part of this activity, the work of the "Prosvjeta"

Serbian Cultural Society was to be presented. Due to the Covid-19 pandemic, this activity had to be postponed to next year.

The Committee continued to work on the project *Serbs in Romania and Romanian-Yugoslav Relations in the Second Half of the 20th Century* (Srbi u Rumuniji i rumunsko-jugoslovenske veze u drugoj polovini 20. veka), which is realized within Inter-Academy Cooperation with the Romanian Academy. It planned to publish a monograph titled “Serbs in Romania and Yugoslav-Romanian Relations in the Second Half of the 20th Century: Archival and Field Materials (Srbi u Rumuniji i jugoslovensko-rumunske veze u drugoj polovini 20. veka: arhivska i terenska gradja), which will come out next year.

In cooperation with the Serbian Institute in Budapest, the Committee associates continued to work on the long-term international project titled *The Ethnology of Serbs in Hungary* (Etnologija Srba u Madjarskoj). The sub-project “The Life of Serbs in Battonya” (Život Srba u Batanji) is led by the Committee associates, Dr. Milena Prelić and Pera Lastić. The Committee also continued its cooperation with the Serbian Institute in Budapest on a project titled “Image and Remembrance” (Slika i sećanje). The Committee also continued good cooperation with the SASA Ethnographic Institute and Institute for Balkan Studies, as well as the Serbian Institute in Budapest.

Human Rights in the 21st Century, Tibor Várady, Miodrag Jovanović (eds.), Eleven International Publishing, SASA, The Hague, 2020, pp. 335.

Vukašin Pavlović, Environmental Rights as a New Wave of Human Rights, **Human Rights in the 21st Century**, Eleven International Publishing, SASA, The Hague, 2020, 257–266.

Dragoljub B. Đorđević, Dragan Todorović, Mirko Blagojević, eds., **Contemporary religious changes: From desecularization to postsecularization**, Niš, Beograd, 2020.

Pajvančić Marijana, Gender Equality in Science – Equal Opportunities and Special Measures in Legal Regulations, **The Bulletin of the Institute of Ethnography SASA**, LXVIII (2), 2020, 261–276.

Miodrag Jovanović, Ivana Krstić, Human Rights and the Constitutionalization of International Law, **Human Rights in the 21st Century**, Eleven International Publishing, SASA, The Hague, 2020, 25–42.

Tibor Várady, Magánjog és etnikai hovátartozás (Приватно право и етничка припадност), **Honeste Benefacere Pro Scientia**, Burián László, Budapest, 2019, 291–306.

**Project: CULTURAL HERITAGE AND SOCIAL CHANGE OF
NATIONAL MINORITIES IN THE REPUBLIC OF SERBIA**

(Corresponding Member Alpar Lošonc)

A research team was formed at the beginning of the year. It worked on building a network of contacts with the representatives of the minorities, cultural institutions and individuals. The development of a preliminary database on the cultural heritage of national minorities and cultural institutions involved in its protection began on the basis of the available data and results of the previous research.

For the initial research, as an introduction to this issue, a relatively small community without the formal minority status was selected – Tzintzars in Serbia. Bearing in mind such a status and the nonexistence of their home country, in the situation when there are no public institutions dealing with the development, protection and promotion of the cultural heritage of this group, the question that might be raised here is how and by what mechanisms, its heritage is passed from one generation to the next. Due to historical circumstances, the people of Tzintzar origin mostly identify themselves with the majority environment, so that their contribution is often unrecognized as the contribution of members of a minority. In addition, their language (called Aromanian) has been included in the group of endangered languages on the UNESCO list. The research conducted among Tzintzars, that is, the people of Tzintzar origin should indicate the form and significance of their heritage, as well as the informal, private, family and personal mechanisms of passing on and developing cultural heritage.

During the year, field work was aggravated, but it was still worked on the collection of the relevant literature, photographs and audio and video recordings. About 30 interviews were done in the Tzintzar language. The materials so obtained were transcribed and analyzed with the participation of all members of the team. Special aspects of the cultural heritage of this group will be selected and further studied.

Project: NATION AND NATION STATE

(Academician Kosta Čavoški)

During 2020, the preparatory work for the project was carried out; 110 books were read and the appropriate excerpts were taken.

Academician Kosta Čavoški wrote two papers in cooperation with Professor Mirjana Stefanovski:

- “Different Criteria for the Assessment and Recognition of Secession” (Različita merila za procenjivanje i priznavanje secesije) and
- “Ius Secessionis. The Impossibility of a Valid Foundation” (Ius Secessionis. Nemogućnost valjanog utemeljenja).

Both papers will be published in the appropriate publications of the University of Belgrade Faculty of Law in 2021.

The writing of a monograph, whose working title is *Nation and Nationalism* (Nacija i nacionalizam) also began.

Kosta Čavoški, *Secession and the Destruction of the Territorial Integrity of United Nations Member States*, Secession from the Viewpoint of Domestic and International Law and Its Political Consequences (Secesija i razaranje teritorijalnog integriteta država članica Ujedinjenih nacija, Secesija sa stanovišta unutrašnjeg i međunarodnog prava i njene političke posledice), Belgrade: Serbian Academy of Sciences and Arts, 2020, pp. 15–19.

Kosta Čavoški, *Nation and Nation State* (Nacija i nacionalna država), Vol. IV, **About the National Identity of Serbs** (O nacionalnom identitetu Srba), Belgrade: Catena mundi, 2020, pp. 835–843.

DEPARTMENT OF HISTORICAL SCIENCES

COMMITTEE ON ARCHAEOLOGY

(Corresponding Member Vujadin Ivanišević)

The work within the Archaeological Committee was conditioned by the Covid-19 epidemic and the impossibility to work in the field as well as in the museum and archaeological collections. It should be noted that the planned scientific meetings at which the Committee members had to present their papers were cancelled.

The research and work on the topics related to the regular activities and the SASA Archaeological Committee were carried out with less intensity. Due to the pandemic, systematic archaeological excavations at Caričin grad, as part of the “Serbian-French Archaeological Research in the Area od Caričin grad” (Srpsko-francuska arheološka istraživanja u oblasti Caričinog grada), had to be postponed. On the other hand, the LiDAR surveys of the eastern slopes of Mount Radan, in the area of 25 sq. km, were carried out in cooperation with the French partners – the University of Strasbourg and the National Research Centre – UMR 7004 (Université de Strasbourg, Centre National de la Recherche Scientifique – UMR 7004). These detailed surveys of the topography of the area will enable a precise determination of the town aqueduct route, catchment area and layout of the late antique fortification at Mali kamen near the catchment area and the mining works and installations underneath the aqueduct route. It was also worked on the preparation of the manuscripts for the volumes Caričin Grad V and Caričin Grad VI.

Further work involved the study of the materials related to the problem of urbanization in northern Illyricum, coupled with an analysis of the urban centres, primarily Caričin grad (*Justiniana Prima*), as well as the preparation of the catalogue of late antique fortifications in present-day Serbia (Northern Illyricum).

In addition, at the invitation of the Austrian Academy of Sciences, Vujadin Ivanišević participated in the meeting related to ERC Synergy Grant Project 856453, “Integrating Genetic, Archaeological and Historical Perspectives on Eastern Central Europe, 400–900 CE – HistoGenes”, which was held in Vienna from 17 to 20 February 2020. It is a big project which, inter alia, included the analysis of human osteological materials, DNA and isotopes from large necropolises from the period of migration from Sirmium and Singidunum.

The project associates continued to carry out the programme of prospecting the archaeological sites in the Kruševac region, within the project “Archaeological Prospecting of the Lower Course of the West Morava (Arheološka prospekcija donjeg toka Zapadne Morave) in order to study medieval settlements on the river terraces.

COMMITTEE ON THE HISTORY OF ART

(Corresponding Member Miodrag Marković)

In 2020, the Committee continued working on the collection and publication of materials for the *Corpus of Monuments of Serbian Medieval Art* (Korpus spomenika srpske srednjovekovne umetnosti). In this work the Committee cooperated with the Institute of Art History of the Belgrade University Faculty of Philosophy. Emphasis was still laid on the destroyed, damaged and highly endangered monuments in Kosovo and Metohija. Work also continued on the preparation of the two *Corpus* volumes, one dedicated to the Gradac Monastery frescoes, and the other to the wall painting of St Peter’s Church on the Lim. Work also continued on the photographic and monographic processing of the wall painting in the narthex of Dečani Monastery. However, field work was significantly aggravated due to the Covid-19 pandemic. In addition, the processing and systematization of the collected field data were carried out to a much lesser degree than anticipated, because the funding of the Committee’s work was three times lesser compared to the previous years.

CHILANDAR COMMITTEE

(Academician Mirjana Živojinović)

Throughout the year, the Committee for Chilandar collected the contributions to Volume 15 of *Chilandar Proceedings*. It contains 16 contributions, half of which were written in foreign languages (English, Greek); several au-

thors are from abroad. The contributions underwent primary technical processing and peer reviewing. The communication with the Committee members and larger number of peer reviewers was maintained at all times.

The Committee members continued their previously announced activities, including specifically the editing of Volume XI of *Holy Mountain: Thoughts and Studies* (Jedanaesta kazivanja o Svetoj Gori), edited by Professor Dr. Zoran Rakić and Assistant Professor Dr. Dejan Dželebdžić. The work was aggravated, because the lectures at the Friends of Mount Athos Society could not be held since March this year. Academician Gojko Subotić finished his monograph on the epitaphios of the Metropolitan of Belgrade Isidorus from the Monastery of St Paul on Mount Athos.

Despite the general epidemic situation, the members of the Committee participated in certain domestic and international scientific meetings, as well as the sessions of international scientific commissions, although such scientific activities were mostly postponed.

In cooperation with Chilandar Monastery and its Foundation in Belgrade, work continued on the Serbian charters kept at Chilandar (Academician Mirjana Živojinović and Professor Dr. Viktor Savić).

The general situation prevented the planned trips of the members of the Committee for Chilandar to Mount Athos.

Loma Aleksandar. "Sanctifying and sanctioning: the Serbo-Croatian *osveta, osvetiti se* reconsidered." M. Jakobowicz (red.). **Etymologica Slavica. Studia Etymologiczne Poświęcone Prof. Franciszkowi Sławskiemu z Okazji Setnej Rocznicy Urodzin**. Prace Slawistyczne. Slavica 146, Instytut Slawistyki Polskiej Akademii Nauk, Fundacja Slawistyczna 146. Kraków, 2019, 181–190 [2020].

Rakić Zoran. „Οι τοιχογραφίες του 18^{ου} αιώνα στη Μονή Χιλανδαρίου. Εικονογραφικά και τεχνοτροπικά χαρακτηριστικά.“ **Mount Athos in the 17th and 18th centuries**. Thessaloniki, 2020, 317–332.

Rakić Zoran. “97. Mitrofan’s tetraevangelion 1600–1605”, “98. Averkije’s psalter”, “99. Typikon of the Studenica Monastery”. Miodrag Marković (exhibition creator and author [i. e. editor] of publication). **Spiritual and cultural heritage of the Monastery of Studenica: past, perseverance, contemporaneity**. SASA Gallery of Visual Arts and Music (13 December 2019 – 31 March 2020). Belgrade: SASA – Monastery of Studenica, 2020, 187–189, 189–191, 191–192.

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Savić Viktor. “28. Vukan’s Evangelion.” Miodrag Marković (exhibition creator and author [i. e. editor] of publication). **Spiritual and cultural heritage of the Monastery of Studenica: past, perseverance, contemporaneity**. SASA Gallery of Visual Arts and Music (13 December 2019 – 31 March 2020). Belgrade: SASA – Monastery of Studenica, 2020, 69–72.

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Шпадиер, Ирена. „Человек пишущий – человек присутствующий в древнесербской агиографии.“ И. Вернер, Н. Запольская, М. Обижаева (ур.). **Десятые Римские Кирилло-Мефодиевские чтения – Slavia Christiana: Язык · Текст · Образ**. Москва: Индрик, 2020, 185–190.

SZENTENDRE COMMITTEE

(Corresponding Member Miodrag Marković)

During 2020, the activities were aimed at reviving the work of the Szentendre Committee of the SASA Department of Historical Sciences, which was at a standstill for a number of years. The planned session of the Committee at the Museum of the Diocese of Buda in Szentendre where, in agreement with the Director of the Museum, Kosta Vuković, MA, the joint projects of the Committee and the Museum of the Diocese of Buda had to be precisely defined, was not held due to the Covid-19 pandemic. Field research was also cancelled for the same reason.

The scanning of the materials from the Legacies of Dr. Vojislav Matić and Professor Miroslav Timotijević, which are relevant for the study of the life of the Serbs in Szentendre and other parts of Hungary, continued. These legacies are kept at the Faculty of Philosophy Institute for Art History in Belgrade. Unfortunately, the work on scanning the available materials was also reduced, because the funding of the Committee's work was three times lesser than planned.

COMMITTEE ON THE HISTORY OF THE SERBS IN CROATIA

(Academician Vasilije Krestić)

As planned, during the past year, Volume 13 was prepared for printing. All papers were peer reviewed and the Department accepted this volume, so that the manuscript was submitted to the SASA Publishing Service.

During 2021, we will try to prepare papers for Volume 14.

**COMMITTEE FOR THE STUDY OF THE CREATION OF THE
KINGDOM OF SERBS, CROATS AND SLOVENES 1914–1918**

(Academician Ljubodrag Dimić)

During 2020, the members of the Committee were involved in peer reviewing the scientific papers presented at a scientific meeting titled “The End of the War, the Serbs and the Creation of Yugoslavia“ (Kraj rata, Srbi i stvaranje Jugoslavije) and the preparation of the proceedings for publication.

**COMMITTEE ON THE HISTORY OF THE SERBS IN XIX
CENTURY**

(Corresponding Member Slavenko Terzić)

In 2020, the Committee on the 19th-Century History of Serbia continued to work on the critical edition of *The Diary of Milan Dj. Milićević* (Dnevnik Milan Dj. Milićevića), a renowned Serbian author, educator and historian, whose manuscript is kept in the SASA Archives. It is the project involving the publishing of the materials titled *The Diary of Milan Dj. Milićević*. During 2020, the work on the third volume of *The Diary* (6 April 1877 – 31 March 1882) was completed. It remains to write the foreword and prepare the indexes of personal and geographical names. The scientific advisors at the Historical Institute, Dr. Petar Krestić and Dr. Aleksandar Ristović, continued to work on the preparation of this manuscript for publication. It is undoubtedly a significant source for the 19th century history of Serbia and its society. Work continued on the critical processing of the fourth volume of *The Diary*, which covers the period from 1 April to 1 January 1892.

The COVID-19 pandemic made it impossible for the associates to participate in the previously planned national and international meetings.

VARDAR COMMITTEE

(Corresponding Member Slavenko Terzić)

During 2020, the activities were aimed at reviving the work of the Vardar Committee of the SASA Department of Historical Sciences, which was at a standstill for a number of years.

It was started to scan the materials from the Legacies of Academician Gordana Babić and Professor Ivan Djordjević, which are relevant for the study of Serbs in the region of Vardar Macedonia in the Middle Ages. These lega-

cies are kept at the Faculty of Philosophy Institute for Art History in Belgrade. The planned field research was not carried out due to the Covid-19 pandemic, while the scanning of the available materials was reduced in volume terms, because the Committee's work was financed three times less than planned.

COMMITTEE ON THE HISTORY OF BOSNIA AND HERZEGOVINA

(Corresponding Member Mira Radojević)

In 2020, the work of the Committee on the 19th- and Early 20th-Century History of Bosnia and Herzegovina was reduced to a minimum due to the Covid-19 pandemic.

COMMITTEE ON THE HISTORY OF THE 20TH CENTURY

(Academician Ljubodrag Dimić)

In 2020, the Committee managed to publish the proceedings of the scientific meetings titled "The End of the War, the Serbs and the Creation of Yugoslavia" (Kraj rata, Srbi i stvaranje Jugoslavije) and "The Right of Rebellion: The Year 1968" (Pravo na pobunu: 1968. godina).

Together with the Committee for the Study of Reptression, the collection of papers titled "Yugoslavia and the Cominform 1948-1956" (Jugoslavija i Informbiro 1948-1956) will be prepared for printing and published.

In 2021, it is planned to organize a cycle of lectures on Kosovo and Metohija as well as a scientific discussion about 1941.

COMMITTEE ON THE HISTORY OF THE SERBIAN-RUSSIAN RELATIONS

(Corresponding Member Slavenko Terzić)

During 2020, it was continued to collect the scientific statements of Serbian and Russian participants in the meeting titled *Serbian-Russian Relations in the Times of Major Political Changes (from the End of the 19th Until the End of the 20th Century)* (Srpsko-ruski odnosi u epohi velikih političkih promena /kraj 18. – kraj 20. veka), which was held at the SASA on 3 October 2019. The Covid-19 epidemic had an impact on the pace of work and the contacts with Russian colleagues relating to the prospects and possibilities for strengthening cooperation between Serbian and Russian historians.

ACADEMIC COMMITTEE FOR KOSOVO AND METOHİJA

(Corresponding Member Dragan Vojvodić)

During 2020, due to the restrictions caused by the Covid-19 pandemic, there were no adequate conditions for research, especially in the field. Therefore, only a part of the SASA Committee's planned activities could be carried out during the past year. Most other activities will be included in the work plan for 2021.

Realized activities:

1. The Committee held two sessions – on 11 February and 28-29 December (the latter was held online). At these sessions it was discussed on the organization of the Committee's research activities and the reports on its work and the work plans were adopted.

2. The formulation and elaboration of the three-year project *History and Cultural Heritage of Serbs in Kosovo and Metohija* (Istorija i kulturna baština Srba na Kosovu i Metohiji) were finished. The project was submitted in response to the *Internal Call for the Proposals of Projects of Strategic Interest* from the SASA Fund for Scientific and Art Research (until 1 March 2020); the competition results have not yet been announced.

3. The completion of the preparation of the proceedings titled *Results of the Current and Course of Future Studies of Serbian Vernaculars in Kosovo and Metohija* (Pravci i rezultati dosadašnjih istraživanja srpskih narodnih govora Kosova i Metohije) for printing.

4. The participation of several Committee members in the preparation of a scientific symposium on the future of Serbian cultural heritage in Kosovo and Metohija (*Protection, Preservation and Affirmation of Serbian Cultural Heritage in Kosovo and Metohija /Zaštita, očuvanje i afirmacija srpskog kulturnog nasledja na Kosovu i Metohiji/*), planned to be held on 9 and 10 November 2020, under the auspices of the SASA Committee for the Serbian Question; the scientific symposium was fully prepared, but had to be postponed due to an explicit ban on holding similar gatherings, enacted as part of COVID-19 pandemic preventive measures three days before the opening of the symposium.

5. The continuation of cooperation in the digitization of the archival materials and photo documentation relating to the monuments in Kosovo and Metohija. The project is carried out within the SASA Committee for Visual Arts. During the year, several hundreds of photos were scanned.

6. Volume 8 of Kosovo and Metohija Proceedings (Kosovsko-metohijski zbornik br. 8) was prepared for printing and came out in mid-November.

COMMITTEE FOR BYZANTINE STUDIES

(Academician Ljubomir Maksimović)

The basic work plan, according to which the Committee was supposed to be the co-organizer of the 7th National Conference of Byzantologists (27–29 October 2020), was not realized due to the pandemic. At the end of the year, the funds earmarked for the Conference were transferred to the SASA Institute for Byzantine Studies to complete a long-term project involving the majority of Committee members.

The part of the work plan that envisaged the enlargement of the Committee was more easily realized, so that the Committee now has 21 members of which 6 are the SASA members and one is an associate at the Austrian Academy of Sciences.

Gojko Subotić, “**The Monastery of Saint John the Forerunner at Jašunja near Leskovac**” (Manastir Svetog Jovana Preteče u Jašunji kod Leskovca), Belgrade 2020 (co-author Michitaka Suzuki)

Srdjan Pirivatrić, “The Marriage of Stefan Nemanjić and Eudokia Angelina Komnene. The Chronology and Historical Context of the Negotiation and Repudiation of a Dynastic Alliance” (Brak Stefana Nemanjića i Eudokije Andjeline Komnine. Hronologija i istorijski kontekst ugovaranja i raskidanja jednog bračnog saveza), in: **Stefan the First-Crowned and His Times** (Stefan Prvovenčani i njegovo doba), Belgrade 2020, pp. 139–158.

Bojan Miljković, “The Unknown Daughter of Stefan the First-Crowned” (Nepoznata kći Stefana Prvovenčanog), in: **Stefan the First-Crowned and His Times** (Stefan Prvovenčani i njegovo doba), Belgrade 2020, pp. 159–182.

Predrag Komatina, “Early South Slavic Ethnonyms and the Issue of Origin and Genesis of South Slavic Tribes” (Rani južnoslovenski etnonimi i pitanje porekla i postanka južnoslovenskih plemena), in: **Heritage and Creation. Saint Cyril – Saint Sava (869-1219-2019)** (Nasledje i stvaranje. Sveti Ćirilo – Sveti Sava /869-1219-2019/), Belgrade 2019 (published in 2020), pp. 9–34.

Bojana Pavlović, “The Live and Narrative Voice of the *Roman History* of Nikephoros Grigora”, (Živ i pripovedajući glas *Romejske istorije* Nićifora Grigore) in: **Voices and Images. Modes of Communication in the Medieval Balkans (4th to 16th Centuries)** (Glasovi i slike. Oblici komunikacije na srednjovekovnom Balkanu /IV-XVI vek/), Belgrade 2020, pp. 165–198.

Tamara Ilić, “The Letter of St Eustatius of Thessalonica About the Abolition of Slavery (Pismo Sv. Evstatija Solunskog o oslobodjenju robova), in: **Νομοφύλαξ, Collection of Papers in Honour of Srdjan Šarkić** (Zbornik u čast Srdjana Šarkića), Belgrade 2020, pp. 129–165 (co-authored with J. Šijaković).

Jovana Šijaković, “Cyclops in Man: Echoes and Consonance in the Interpretation of the Homeric Image” (Kiklop u čovjeku: odjeci i sazvučja u tumačenju homerske slike), in: **Voices and Images. Modes of Communication in the Medieval Balkans (4th to 16th Centuries)** (Glasovi i slike. Oblici komunikacije na srednjovekovnom Balkanu /IV-XVI vek/), Belgrade 2020, pp. 139–163.

COMMITTEE FOR BALKAN STUDIES

(Corresponding Member Vujadin Ivanišević)

The members of the Committee continued the research in their thematic areas with less intensity under the Covid-19 pandemic circumstances.

Project: **MATERIAL FOR THE HISTORY OF THE SERBS
IN CROATIA AND SLAVONIA**

(Academician Vasilije Krestić)

In 2020, I prepared two volumes of my work for publication: *Historiographical Articles and Discussions* (Istoriografski članci i rasprave), Vol. I, 385 p., and Vol. II, 383 p., for publication. They are being printed and their publishers are the SASA and Matica Srpska.

Project: **MONASTERY OF ST JOHN THE FORERUNNER
IN JAŠUNJA**

(Academician Gojko Subotić)

The monograph titled **The Monastery of Saint John the Forerunner at Jašunja** (Manastir Svetog Jovana Preteče u Jašunji) was published by the SASA Department of Historical Sciences as Special Edition 31 (co-authored with Michitaka Suzuki) in Belgrade in 2020.

It is planned to publish the monograph in the same form and volume in the Japanese language on the basis of our technical preparation. The book has been translated by our colleague Sachi Shimada, an art historian who is fluent in the Serbian language.

Project: **EUROPE AND SERBIA IN THE MIDDLE AGES**

(Academician Jovanka Kalić)

Given the situation in the country (pandemic), the work was primarily focused on sorting out and processing the voluminous project documentation.

Project: **TRADE IN WAX FROM SERBIA AND BOSNIA
IN DUBROVNIK IN THE MIDDLE AGES**

(Academician Desanka Kovačević-Kojić)

The article *Precious Metals of Serbia and Bosnia – An Assessment of Production (14th and 15th Centuries)* (Plemeniti metali Srbije i Bosne – procjena proizvodnje /14–15. vijek/) – was submitted for publication in *Homage to Academician Djura Tošić* (Spomenica akademiku Djuri Tošiću), which is prepared by the Academy of Sciences and Arts of the Republic of Srpska, Faculty of Philosophy, Banja Luka, Faculty of Philosophy, Pale, and Historical Institute, Belgrade.

Serbian Gold in Venice 1429–1439 (Srpsko zlato u Veneciji 1429–1439 / Desanka Kovačević Kojić // **The World of Medieval Fortresses, Towns and Monasteries. Homage to Marko Popović** (Svet srednjovekovnih tvrđava, gradova i manastira. Omaž Marku Popoviću) / Editors Vujadin Ivanišević, Vesna Bikić, Ivan Bugarski. Belgrade: Archaeological Institute, 2020, pp. 59–67.

Project: **SERBIA AND THE ITALIAN STATES IN THE LATE
MEDIEVAL PERIOD**

(Academician Momčilo Spremić)

During 2020, I dealt with the history of Serbia in the Late Middle Ages. I especially focused on the position of Serbs in the relations between the then two great powers, the Turkish Empire and the Venetian Republic. Advancing from the south east, the Turks conquered the parts of the Serbian state in the 14th and 15 centuries. With the victory in the Battle of Marica in 1371, they halted the southward expansion of the Serbian state. From that time on, there began large-scale migrations of Serbs to the north and the west. Serbs settled in Hungary, Bosnia, Slavonia, Croatia, Dalmatia and even Italy. The Turks finally conquered the Serbian Despotate in 1459.

Venice, a powerful economic centre, with a large fleet, had numerous estates in the East. It fought against the Turks but also retreated. As it lost its strongholds in the East, it conquered the so-called “solid ground”, that is, Lombardy, fighting against the Duchy of Milan. Serbs were also involved in the wars between the Turkish Empire and the Venetian Republic. They were taken to the East as slaves, but some had military careers after their conversion to Islam. Those who arrived in the West engaged in agriculture and handicrafts, or worked on Venetian ships. In any case, the Turkish conquest of

Southeast Europe brought about large-scale migrations of Serbs, both to the Danube region and the vast region of the Mediterranean.

In 2020, I published the fourth edition of the book **Despot Djuradj Branković and His Times** (Despot Djuradj Branković i njegovo doba), Belgrade 2020, 1–942 p., and the third edition of the monograph **Serbia and Venice (6th to 16th Century)** (Srbija i Venecija (VI-XVI vek), Belgrade 2020, 1–338 p.

Project: **STATE AND SOCIETY IN BYZANTIUM**

(Academician Ljubomir Maksimović)

A concrete two-year (2020–2021) project is planned as an edition with the accompanying study and the entire critical apparatus of the original of the Lykusada Chrisobull of 1348 issued by Emperor Stefan Dušan. In the first year, preparatory work was done, including comparison with the already known versions. Not everything that was planned could be done, mostly due to the months-long suspension of library services caused by the pandemic. In the second, final year of work on the project, all backlogs should be overcome.

Ljubomir Maksimović, “Stefan Nemanja and Byzantium: The Reality of Time” (Stefan Nemanja i Vizantija: Stvarnost jednog vremena) in: **Stefan Nemanja – Saint Simeon: History and Tradition** (Stefan Nemanja – Sveti Simeon: istorija i tradicija), Berane – Belgrade 2016 (published in 2020), I/75–79.

Dejan Dželebdžić. “The Old Testament in Nicetas Choniates’ Speech Praising Isaac II Angelos, Written After the Battle of Morava (Λόγος Δ’)” (Stari zavet u pohvalnom govoru Nikite Honijata Isaku II Andjelu, napisanom posle bitke na Moravi /Λόγος Δ’/), in: **Stefan Nemanja – Saint Simeon; History and Tradition** (Stefan Nemanja – Sveti Simeon: istorija i tradicija), Berane – Belgrade 2016 (published in 2020), pp. 109–122.

Project: **FONTES – THE GREEK ACTS OF THE HILANDAR MONASTERY, VOL. III (14TH-15TH CENTURY)**

(Academician Mirjana Živojinović)

During the year, I devoted most of my time to working on *Serbian Acts of Hilandar Monastery* (Srpski akti manastira Hilandara). The activities continued despite unfavourable circumstances and numerous restrictions due to the general health situation. The largest part of the work on the basic part of the file was completed. We came to some new observations, from which I single out the conclusion that the chrysobull from the first half of the 14th century for the Monastery of Saint Nikola of Mraka, which has so far been attrib-

uted to King Stefan Uroš III (AHS 11), is still the chrysobull by King Stefan Uroš II Milutin. The processing and supplementation of the introductory text and extensive work on *Supplementa* are underway. The work is carried out in cooperation with Professor Dr. V. Savić and in consultation with A.A. Turilov, foreign member of SASA.

The last revision and the author's proofreading of the introductory essay and text of *Greek Acts of Chilandar Monastery* (Grčki akti manastira Hilandara – *Actes de Chilandar II /1320–1335/*) were completed.

The authors' contributions to Volume 15 of *Chilandar Proceedings* (Hilandarski zbornik) were collected in cooperation with the editorial staff. The reviews and primary technical verification of the articles – including a few of my reviews for the contributions dealing with medieval history were also done.

At the ceremonial session dedicated to the Nomocanon of Saint Sava (“800 Years of the Nomocanon of Saint Sava” /800 godina Zakonopravila Svetog Save/), which was held at the SASA on 30 October 2020, I participated with the following topic: “Domestic Historiography on the Nomocanon of Saint Sava” (Domaća istoriografija o Zakonopravilu Svetog Save).

The paper titled “The Relations Between Serbia and Byzantium in the Light of the Donation of Protosebastos Hrelja's Endowment – the Church of Saint Archangel Michael in Štip – to Chilandar Monastery” (Odnosi Srbije i Vizantije u svetlosti darovanja manastiru Hilandaru zadužbine protosevasta Hrelje – crkve Svetog arhandjela Mihaila u Štipu) was prepared for publication in Moscow.

Published study: Mirjana Živojinović, “Hieromonk Dorotheus – Abbot of Chilandar Monastery (1355–1360) and Protos of Mount Athos (1356–1366)” (Jeromonah Dorotej – iguman manastira Hilandara /1355–1360/ i prot Svete Gore /1356–1366/). Eds. T. Ilić and M. Božić. **Νομοφύλαξ. Collection of Papers in Honour of Srdjan Šarkić** (Zbornik radova u čast Srdjana Šarkića), Belgrade: Union University Faculty of Law, JP Službeni glasnik, 2020, pp. 379–394.

Project: **THE YEARS OF UNCERTAINTY. SERBIA
IN INTERNATIONAL POLITICS 1903–1908**

(Academician Mihailo Vojvodić)

I have finished the book script, which is in the process of editing now, on the basis of gathered materials, archive documents and other resources. I have started writing the script of the new proposed book titled Serbia – the Time of Resistance to the Foreign Interests in the Balkans (from the Annexation Crisis to the Great War).

Project: **YUGOSLAVIA AND THE SOVIET UNION. SUMMIT MEETINGS**

(Academician Ljubodrag Dimić)

During 2020, we carried out research within the project titled “Yugoslavia and Europe (1945–1980)” (Jugoslavija i Evropa /1945–1980/). Due to the problems caused by the COVID-19 pandemic in the work of archival institutions we could not complete a work plan. We will complete our work on the book that will have the same title (Yugoslavia and Europe 1945–1980) during 2021.

War and Remembrance. **The Great War 1914–1918 in Memoirs and War Diaries** (Rat i sećanje. Veliki rat 1914–1918. u memoarima i ratnim dnevnicima), Niš 2020, pp. 11–32.

Causes of the Great War. Serbia and Yugoslav Unification. **One Hundred Years Since Unification. The Formation of the State and Law** (Uzroci Velikog rata. Srbija i jugoslovensko ujedinjenje. Sto godina od ujedinjenja. Formiranje države i prava), Belgrade 2020, pp. 19–44.

Education in the Kingdom of Yugoslavia. **One Hundred Years Since Unification. The Formation of the State and Law** (Prosveta u jugoslovenskoj kraljevini. Sto godina od ujedinjenja. Formiranje države i prava), Belgrade 2020, pp. 231–250.

Slobodan Jovanović and the Serbian Cultural Club (1937–1941) (Slobodan Jovanović i Srpski kulturni klub /1937–1941/), in: **Slobodan Jovanović: On the Occasion of the 150th Anniversary of His Birth** (Slobodan Jovanović: povodom 150 godina od rođenja). Scientific meeting held at the SASA, 7-8 November 2019, Belgrade 2020, pp. 181–204.

Project: **EUROPE AND THE SERBS IN THE SECOND HALF OF THE 19TH AND EARLY 20TH CENTURIES**

(Corresponding Member Slavenko Terzić)

In 2020, I finished writing the monographic part that will be published under the title *At the Gates of Constantinople. Russia and the Balkan Question in the 19th Century* (Na kapijama Konstantinopolja. Rusija i balkansko pitanje u 19. veku).

The following works within the project were published or are being printed:

The Letter of Sima Igumanov to the Russian Ambassador in Constantinople Nikolay Ignatyev (Pismo Sime Igumanova ruskom ambasadoru u Carigradu Nikolaju Ignjatijevu), **Kosovo and Metohija Proceedings 8 (Kosovsko-metohijski zbornik 8)**, Belgrade: SASA, 2019, pp. 113–123.

Project: **PAVEL PETROVIĆ, THE FORGOTTEN SERBIAN PAINTER
OF THE 19TH CENTURY**

(Corresponding Member Miodrag Marković)

Almost all activities planned for 2020 had to be postponed due to the Covid-19 pandemic. This primarily applies to the planned visits to museums, archives and libraries in Bombay and Calcutta (India), where Pavel Petrović lived and worked in 1844-1845 and 1885-1886, Lahore (Pakistan), where he stayed in 1846, Hong Kong, Bangkok and Singapore, where he stayed in 1850 and 1886, as well as a visit to the Royal Museum in Tokyo, where Petrović's previously unknown portrait of Hawaiian King Kalakua is kept. The portrait was donated to Japanese Emperor Mutsuhito in 1885.

The work on the project was mostly confined to the study and systematization of the materials collected during the previous year. Preparatory work began on the publication of the book *From Timisoara to Hawaii. Pavel Petrović – A Forgotten Serbian Painter. Second, Supplemented Edition* (Od Temišvara do Havaja. Pavel Petrović – zaboravljeni srpski slikar. Drugo, dopunjeno izdanje), which was included by Službeni glasnik in its publishing plan for 2021.

In agreement with the SASA management, the funds allocated for 2020 were spent on the digital processing of the available materials as well as for the procurement of equipment for the work on the project (desktop computer).

Project: **CHURCH OF SAINT STEPHEN IN DULJEVO**

(Corresponding Member Dragan Vojvodić)

The planned work on the realization of the first phase of the project was greatly aggravated due to the Covid-19 pandemic, especially because the emphasis was placed on longer field work in Montenegro, that is, on the monument itself. Therefore, the original plan had to be partially changed and adjusted to the new circumstances. Necessary equipment for field and archival work was obtained, relevant scientific literature was collected and processed, part of the digital recording of the monument was completed and the drawings of wall paintings in the Church of St Stephen were made.

Project: **THE MONETARY ECONOMY IN BYZANTIUM AND
MEDIEVAL SERBIA**

(Corresponding Member Vujadin Ivanišević)

A significant part of the activities planned for 2020 could not be carried out due to the Covid-19 pandemic. The work was primarily focused on the study of coinage and sigillographic material.

Work continued on the collection and study of numismatic materials from Late Antiquity until the Middle Ages, laying special emphasis on Serbian coinage. Work also began on cataloguing the seals from the mentioned periods.

The project included the study of money circulation during the rule of the first members of the Nemanjić dynasty, as well as the circulation of Byzantine money, laying special emphasis on histamena and their gradual withdrawal caused by the decline in the value of the Byzantine solidus and its replacement with the new Venetian silver grosso of the consistent fineness and weight. The analyzed circulation of money pointed to its uneven regional distribution conditioned primarily by the degree of monetization and economic development. The coast and its neighbouring regions were characterized by trade-related money exchange, primarily with Italy. On the other hand, Byzantine money played a significant role in the central parts of the state, which is best evidenced by the coinage of King Stefan Radoslav, whose issues were modelled after the coinage of the Empire of Thessaloniki.

The research was partially dedicated to studying the regional circulation of money in the Middle Ages using the region of Mladenovac as an example, as well as the appearance of commercial seals. The data about the circulation of Serbian medieval money from the second part of the 14th to the second part of the 15th century and the coinage of Emperor Uroš, regional lords and, in particular, Despot Djurdj Branković are especially valuable. It is worth mentioning the finds including the seals of the cities of Tulln (?) and Dubrovnik, which testify to the importance of trade in the hinterland of the major urban centres and cloth trade in the 15th century.

The collection of Serbian medieval coins, bought recently from Slobodanka Stojaković, was presented in cooperation with V. Radić. Special emphasis was laid on unique and rare money issues.

The processing of Byzantine and Serbian medieval coinage continued at the National Museum in Belgrade.

It must be noted that the organization of the “Ninth Joint Meeting of ECFN and nomisma.org” and participation in the planned international lectures within an Individual Project were not realized.

DEPARTMENT OF FINE ARTS AND MUSIC

Project: **LEXICON OF ARTISTIC DANCE**

(Academician Svetomir Basara)

Due to the limited funds in 2019 and 2020, the third volume of the *Lexicon*, under the new title *A Lexicon of Ballet and Stage Art Dance* (Leksikon baleta i scenskog umetničkog plesa), was only prepared for printing. When all three volumes are completed, the *Lexicon* will have a total of 2,800 pages. The following is expected to be done with respect to the remaining two volumes: final editing (the equalization of references, names, orchestras and the like), proofreading, processing of photographs, design, layout and the creation of the index that will have about 120 pages. Thereafter these two volumes of the *Lexicon* will be prepared for printing.

The editorial was written by Professor Dr. Alkis Raftis, President of the International Dance Council (CID) at UNESCO.

In order to complete this major project in 2021 it is necessary to secure the funds for the last realization phase.

Project: **CONTEMPORARY SERBIAN MUSIC SCENE**

(Academician Dejan Despić)

MELITA MILIN

She prepared the precious materials from the interwar Yugoslav musical heritage: “Josip Slavenski in Correspondence with Ludwig and Willy Strecker, Directors of the Schott Publishing House in Mainz” (Josip Slavenski u prepisci sa Ludvigom i Vilijem Štrekerom, direktorima izdavačke kuće Šot iz Majnca) (Josip Slavenski in der Korrespondenz mit Ludwig und Willy Strecker den Direktoren des Verlags Schott, Mainz. Herausgegeben von Melita Milin), SASA Institute of Musicology, with the financial support of

the Strecker Foundation from Mainz, for the publisher: Katarina Tomašević, Belgrade 2020, 260 p.

KATARINA TOMAŠEVIĆ

She is the leader of the project *Music and Theatre: The Modalities of Coexistence in the National Practice of the Modern Age* (Muzika i teatar: modaliteti sapostojanja u nacionalnoj praksi modernog doba) within the Department of Stage Arts and Music of Matica Srpska.

She is the Editor-in-Chief of the Matica Srpska Journal of Stage Arts and Music (Zbornik Matice srpske za scenske umetnosti i muziku). In two issues of the Journal (Nos. 62 and 63, 2020) three essays on the music stage were published; one essay largely belongs to the history of opera, operetta and ballet criticism, as well as one review of the collection of papers which is partly dedicated to the Serbian music-stage opus:

Milica D. Lazarević, “A Jungian Approach to Ravel’s Opera *The Child and the Enchantments*” (Prilog tumačenjima Ravelove opere *Dete i čarolije*), **Matica Srpska Journal of Stage Arts and Music** (Zbornik matice srpske) 62, pp. 119–131.

Monika J. Novaković, “Incidental Music of Zoran Erić” (Pozorišna muzika Zorana Erića), **Matica Srpska Journal of Stage Arts and Music** 63, pp. 115–131.

Aleksandar N. Vasić. “Critical Views of Branko Dragutinović” (Kritičarski pogledi Branka Dragutinovića), **Matica Srpska Journal of Stage Arts and Music** 63, pp. 55–79.

BILJANA MILANOVIĆ

Most of her work included the preparation and editing of a thematic collection of papers on music in postsocialism (co-editors: Dr. Melita Milin and Dr. Danka Lajić Mihajlović). The work on this voluminous edition implied a detailed critical insight into theoretical literature and the traditions of different former socialist societies from a large geographic area, from Germany in the west to Russia, Kazakhstan and Georgia in the east, namely the states created after the breakup of Yugoslavia and the former Warsaw Pact countries. Since the contributions to this edition include the approaches to the study of different musical genres and/or institutions in the postsocialist countries, a significant number of them are concerned, to a greater or lesser extent, to numerous music-scene issues.

The research on the role of music in the Yugoslav diplomacy in the years immediately after Yugoslavia broke away from the Soviet Union and other “people’s democracies” (1948-1952), conducted in the Archives of Yugoslavia, was completed at the beginning of the year.

In order to complete and publish the monograph on the composer and writer Milenko Paunović (1889–1924), the author of the first musical dramas

in Serbia, in the coming period, a paper on Paunović's drama *Model* was written. It deals with the philosophical thinking aspects of the work, primarily its relation to the philosophy of Friedrich Nietzsche, and emphasizes their role in the formation of Paunović's worldview and musical poetics.

NADEŽDA MOSUSOVA

Nadežda Mosusova presented the book *Musical Culture of Serbia, Croatia, Slovenia (Музыкальная культура Сербии, Хорватии, Словении, Moscow 2008, 288 p.)* in her review obituary "Elena Isakovna Gordina (9 February 1939 – 10 December 2019) and her Research on the Music of the Former Yugoslav Peoples" (Elena Isakovna Gordina /9. Februar 1939 – 10 decembar 2019/ i njena istraživanja muzike bivših jugoslovenskih naroda), Belgrade: **Muzikologija** No. 29, 2020, 193 p.

The papers that are being printed:

Надежда Мосусова, Ольга Спесивцева - Красная жизель - Красная аврора (Борис Эйфман и Светлана Буровић) – По поводу 125 лет от рождения, CID UNESCO SPb 2020.

Надежда Мосусова, "Творчество Леонида Мясина у Южных Славян". // **Academia: Танец. Музыка. Театр. Образование.** Издательство: Московская государственная академия хореографии, Moscow 2020.

Congresses

Milanović, Biljana, "Historical Studies of Music and Cultural Diplomacy: Towards a Research Agenda in Subaltern Europe", in: Ivana Vesić, Vesna Peno (ed.), *The Tunes of Diplomatic and Music Notes. Music and Diplomacy in Southeast Europe (19th–21st Century)* (Tragom zvuka i depeše. Muzika i diplomatija u zemljama jugoistočne Evrope /19-21. vek/. International Scientific Conference, SASA Institute of Musicology, Belgrade, 16–17 May 2019. Book of Abstracts (Knjiga sažetaka)/The Tunes of Diplomatic and Music Notes. Music and Diplomacy in Southeast Europe (19th-21st century). International Conference, SASA Institute of Musicology, Belgrade 16-17 May, 2019. Book of Abstracts. Belgrade, SASA Institute of Musicology, 17 p.

Nadežda Mosusova participated in the International Musicological Conference "The Yugoslav Idea in/of Music" (Jugoslovenska ideja u/o muzici), Novi Sad, 25-26 May 2019. She presented the paper on "A Contribution to the History of Performance on the Music Scenes of Former Yugoslavias and the History of Performance of Yugoslav Works, as well as the Presence of Yugoslav Performers on Foreign Scenes" (Prilog istoriji izvodjaštva na

muzičkim scenama bivših Jugoslavija i istoriji izvodjenja jugoslovenskih dela, kao i prisustva jugoslovenskih izvodjača na inostranim scenama).

Round Tables

Milica Zajcev participated with her audio contributions in a round table titled “Maga Magazinović Days” (Dani Mage Magatinović), organized by Sanja Krsmanović-Tasić, and a round table titled “Smiljana Mandukić Days” (Dani Smiljane Mandukić), organized by Vera Obradović, Belgrade 2019.

Nadežda Mosusova participated in the round table at the National Theatre Museum on 4 June, which was held on the occasion of the premiere of Konjović’s “Koštana” in the National Theatre in Belgrade on 14 June 2019.

Printed Works

MELITA MILIN

The SASA Institute of Musicology published Melita Milin’s monograph on Ljubica Marić, Belgrade 2019. The book won the Stana Djurić-Klajn Award that is given by the Serbian Musicological Society.

KATARINA TOMAŠEVIĆ

“Life Dedicated to Music. On the Creative Poetics of Dejan Despić” (Život posvećen muzici. O stvaralačkoj poetici Dejana Despića), in: Banatian Falstaff. Comic Opera “Priest Čira and Priest Spira“ by Dejan Despić (Banatski Falstaf. Komična opera “Pop Čira i pop Spira” Dejana Despića). Editors: Dr. Sonja Marinković and Dr. Nemanja Sovtić, Miloš Crnjanski Cultural Centre of Vojvodina and Serbian Musicological Society, Novi Sad 2019, pp. 19–32.

Davorin Jenko – “Our Prominent Foreigner” in the Directions of the Development of the Serbian Art and Culture of the Modern Era (Davorin Jenko – „naš znameniti stranac“ u tokovima razvoja srpske umetnosti i kulture modernog doba). – On the occasion of the presentation of the collection of papers titled “Davorin Jenko (1835–1914). Contributions to Cultural Remembrance (Davorin Jenko /1835–1914/. Prilozi za kulturu sećanja). Publishers: SASA Institute of Musicology and National Council of the Slovene National Minority in the Republic Serbia. Editor: Katarina Tomašević; Belgrade 2016. In: Miro Vuksanović (ed.), Yearbook of the SASA Library Forum (Godišnjak Tribine Biblioteke SANU) / The SASA Library Forum, VII, 7, 2019.

She is also the author of the introductory essay “A Polyvalent Creative Portrait” (Polivalentan stvaralački portret) and editor of Dr. Jelena Mihajlović Marković’s monograph “Predrag Milošević – Portrait of a Music Maker” (Predrag Milošević – portret muzičkog stvaraoca), SASA Institute of Musicology and Serbian Musicological Society, Belgrade 2019, pp. 7–13.

BILJANA MILANOVIĆ

Biljana Milanović (ed.): *On the Margins of the Musicological Canon: The Generation of Composers Petar Stojanović, Petar Krstić and Stanislav Binički* (Na marginama muzikološkog kanona: kompozitorska generacija Petra Stojanovića, Petra Krstića i Stanislava Biničkog), Serbian Musicological Society – SASA Institute of Musicology, Belgrade 2019, 382 p.

Biljana Milanović, “Activities of Petar Krstić and Stanislav Binički in the Association of Serbian Musicians” (Delovanje Petra Krstića i Stanislava Biničkog u Udruženju srpskih muzičara), in: Biljana Milanović (ed.), *On the Margins of the Musicological Canon: The Generation of Composers Petar Stojanović, Petar Krstić and Stanislav Binički* (Na marginama muzikološkog kanona: kompozitorska generacija Petra Stojanovića, Petra Krstića i Stanislava Biničkog). Belgrade: Serbian Musicological Society – SASA Institute of Musicology, 2019, pp. 241–264.

Biljana S. Milanović, “Study of the Artistic Biography and Musical Activities of Petar Stojanović: A Contribution to the Identification and Consideration of Research Sources” (Proučavanje umetničke biografije i muzičkog delovanja Petra Stojanovića: prilog identifikaciji i razmatranju istraživačkih izvora), *Zbornik Matice Srpske za scenske umetnosti i muziku* 61 (2019), pp. 209–238.

MILICA ZAJCEV

“That’s how it started, never to be forgotten”, the publication of the “Chronicle of the Development of the Art of Ballet in the Former Yugoslavia in the 20th Century” (“Tako je počelo, da se ne zaboravi”, publikacija “Hronike razvoja baletske umetnosti na bivšim jugoslovenskim prostorima u 20. veku”), published by the author at her expense, Belgrade 2019.

NADEŽDA MOSUSOVA

Texts for the programme booklet for Petar Konjović’s opera “Koštana”, including “Lament for Youth” (Žal za mladost), National Theatre, Belgrade 2019.

**COMMITTEE FOR THE DICTIONARY VISUAL ARTS AND
ARCHITECTURE**

(Academician Milan Lojanica)

At the end of 2018, the work on the third volume also started. The existing texts were digitized and submitted to the section editors for scrutiny. The alphabetical index was revised and supplemented, while the entries were arranged under sections. The section editors prepared their work plans. It was planned to complete the first one third of the texts for the third volume in 2019. At the end of the year, 80 general section entries (editor: Dr. Ljiljana Stošić), 26 entries on architecture (editor: Dr. Dijana Milašinić Marić), 26 entries

on modern art (editor: Žana Gvozdenović) and 30 entries covering the Middle Ages (editor: Dr. Miodrag Marković, corresponding member of SASA) were completed. So far, 160–170 entries have been completed, which roughly corresponds to one third of the volume or, in other words, the planned volume of the texts for 2019.

It was planned to complete about 120 entries (450,000 characters) in 2020.

Dr. Dijana Milašinović Marić completed 29 entries on architecture, thus fulfilling the plan.

In the first half of the year, Dr. Ljiljana Stošić carried out the final work relating to the second volume. As for the third volume, she edited the completed entries in the third volume for the second time and wrote two entries.

The team of Dr. Miodrag Marković is now working on 82 entries (Dr Marković is in charge of all these entries within the third volume). Out of the total number 28 entries were practically completed (that is, ready for Ljiljana Stošić's editing), while the remaining ones will be completed by the end of January 2021.

During 2020, Secretary Kušić carried out the regular activities related to the third volume. In addition, from mid-March to mid-July 2020, he carried out the final activities related to the second volume together with his colleague Jelena Davidović from the "Zavod za udžbenike" Publishing House – index compilation, text and bibliography corrections, which the editors, by definition, could not register, preparation of the definite accompanying parts of the book, reorganization of the edited index and, finally, provision of the permits for the use of illustrations.

COMMITTEE FOR THE PROTECTION OF SERBIAN MUSICAL HERITAGE

(Corresponding Member Jelena Jovanović)

In early autumn, the Committee unfortunately lost its President, Academician Isidora Žebeljan, who was the *spiritus movens* of this working body. Due to the new circumstances and the need to continue the functioning of the Committee, the duty of President was taken over by SASA corresponding member Jelena Jovanović, an ethnomusicologist, at the proposal of the members of the Department of Arts (formerly the Department of Fine Arts and Music). The new members of the Committee were also included in its work: SASA corresponding member Svetislav Božić, a composer and scien-

tific associate at the SASA Institute of Musicology, and Dr. Aleksandar Vasić, a musicologist. Otherwise, the Committee continued its activities to the extent permitted by the epidemiological situation in the country.

In 2020, the continuity of the most important activities was ensured, including specifically the entry of data into a single electronic database, collection of Serbian composers' scores and digitization based on the highest standards in cooperation with the SASA Digitization Centre. A double audio edition, prepared for three years, also came out. The performance and concert segment of the activities was especially adversely affected by the Covid-19 pandemic. It is hoped that this near-standstill situation will be overcome during 2021.

During 2020, the work included the following:

1. The further entry of the data about all Serbian composers and their works, from the 15th century to the present day, into the database. In 2020, the number of the works stored in the database reached an impressive 6,958 thanks to the enthusiasm and dedication of the Committee members and associates.

2. The database browser was enriched with the data about the institutions in Serbia where a certain score can be found, thus enabling one's overview and facilitating searching for specified works.

3. The plan that had been continuously worked on during the last three years (starting in 2018) was realized: a double compact disc titled *Chamber Music. Stojanović – Logar – Gostuški – Bruči – Obradović* (Kamerna muzika: Stojanović – Logar – Gostuški – Bruči – Obradović) with chamber music by five Serbian composers (Petar Stojanović, Mihovil Logar, Academician Rudolf Bruči, Dragutin Gostuški and Aleksandar Obradović) was released. This double CD with the accompanying booklet in Serbian and English, with the expert commentaries by Dr. Borislav Čičovački about the authors and their works, was released in cooperation with Mascom Records from Belgrade. The presentation of this compact disc, which was planned to take place on the premises of the SASA Club in December this year, was cancelled due to the pandemic. We hope that the conditions for its presentation will be created next year.

4. Sorting out the legacies of Milenko Živković and Mihovil Logar, their archiving and preparation for digitization. The preparation of the legacy of Academician Milan Ristić for the same reason also began.

5. Inviting contemporary Serbian composers to send the lists of their works and the relevant data using a prepared form in order to enter them in the

central database. This activity implied correspondence and giving instructions for the preparation of this kind of information about their works.

6. Communicating with musicians who are interested in certain compositions and assist them in finding the desired scores.

7. This year, as in the previous years, the works/scores of Serbian composers were distributed to prominent musicians in Serbia and abroad (Germany, the United States, the Netherlands).

8. The year-round public presentation of the Committee's activities and acquainting the public with the possibilities opened up by its existence and work.

Project: **OLGA JEVRIĆ'S LEGACY AT THE SASA**

(Academician Dušan Otašević)

The processing and recording of archival materials in electronic form continued.

All scanned units of the heremiotheque were entered into the Legacy Database.

An expert guided tour was organized every Wednesday (January and February 2020).

The total number of visitors – 356.

The Database of the Legacy of Olga Jevrić was regularly updated.

The conservation of the sculptures from the Legacy of Olga Jevrić was not finished. Conservator: Rista Mihić, National Museum, Belgrade.

Cooperation with Academician Nada Milošević (Book: **Women Members of SASA**, Olga Jevrić /Žene akademici članovi SASA, Olga Jevrić/).

CENTRE FOR SCIENTIFIC RESEARCH OF THE SASA AND UNIVERSITY OF KRAGUJEVAC

Moving of the Centre into the Legacy of Nikola Koka Janković:

In mid-2020, the Centre for Scientific Research of the SASA and University of Kragujevac (Centre) moved into the premises within the Legacy of Nikola Koka Janković, bequeathed by Academician Janković to the Centre as a token of appreciation for SASA membership. Furniture production and the procurement of equipment for two offices, a multifunctional hall and a kitchenette were successfully completed thanks to the financial support of the SASA and University of Kragujevac. The Centre now has good working conditions, while its premises are located within the sculpture gallery of Academician Nikola Koka Janković, which is managed by the National Museum in Kragujevac.

Publishing Activity:

1. The monograph **Chemical Stories from the Plant Kingdom** (Hemijske priče iz carstva biljaka), authored by Academician Ivan Gutman, Professor Dr. Gorica Djelić, Faculty of Natural Sciences and Mathematics in Kragujevac, and Academician Vladimir Stevanović, was published.

2. The proceedings titled **From the Capital City to the Industrial Centre of Serbia – Kragujevac in the Mid-19th Century** (Od prestonice do industrijskog centra Srbije – Kragujevac sredinom 19. veka), which contain the papers presented at the scientific meeting of the same name, held at the University of Kragujevac, on 17 October 2019, were published.

3. The collection of papers titled *Dragoslav Srejšović and Mythology* (Dragoslav Srejšović i mitologija), whose editor is Academician Vidojko Jović, was prepared for printing. The printing of the Collection was financially supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

Lectures:

1. Dr. Miroslav Kocić delivered a lecture titled *Emergency of Social Complexity and Community Building During the Neolithic Period in the Micro-Region of Upper Gruža* (Pojava društvene kompleksnosti i izgradnja zajednice tokom neolitskog perioda u mikro-regiji Gornje Gruže) in the Grand Hall of the University of Kragujevac on 20 February 2020. The lecture was organized in cooperation with the Institute for the Protection of Cultural Monuments in Kragujevac. Archaeologist-anthropologist Miroslav Kocić, PhD, Department of Archaeology, University of Pittsburgh, presented the results of his PhD thesis about archaeological investigations in the micro-region of Upper Gruža, as part of the investigations within the SRGAP Project, which has been carried out by the University of Pittsburg and the Institute for the Protection of Cultural Monuments in Kragujevac since 2017.

Exhibitions and Concerts:

2. On 6 February, the exhibition was staged and the anthology *Mother Ana Adžić (1900-1975), a Spiritual Child of Bishop Nikolaj Velimirović* (Mati Ana Adžić /1900-1975/ duhovno čedo Vladike Nikolaja Velimirovića) was presented at the University Gallery, in cooperation with the Museum of Rudnik and Takovo Region in Gornji Milanovac and the Faculty of Education in Jagodina.

3. The concert titled *Music of Composers-Academicians, Travelling Across Serbia* (Muzika kompozitora-akademika, putovanje po Srbiji) was held in the Ceremonial Hall of the First Kragujevac High School on 10 October 2020 as part of the SASA tour aimed at acquainting a wider cultural public in Serbia with the major works of the composers academicians created in the 20th and 21st centuries.

4. Participation in the organization of the exhibition titled *Academicians in the Works of Nikola Janković* (Akademici u delima Nikole Jankovića), which was staged by the National Museum in Kragujevac and opened on 12 December 2020 on the occasion of the anniversary of the birth of Academician Nikola Koka Janković and the opening of the permanent exhibition of his sculptures in the Legacy. On behalf of the SASA, the exhibition was opened by Professor Dr. Zdravko Joksimović, a former student of Professor Nikola Janković, at the suggestion of Academician Milan Lojanica.

INTERNATIONAL COOPERATION IN 2020

CEREMONIAL SESSIONS

The SASA Department of Language and Literature, SASA Department of Historical Sciences and the Department of Social Sciences organized a ceremonial session to mark the *800th Anniversary of the Nomocanon of Saint Sava*.

The ceremonial session was held in the SASA Grand Hall on 30 October 2020. The introductory speeches were delivered by SASA President, Academician Vladimir S. Kostić, and Academician Zlata Bojović, Secretary of the Department of Language and Literature. The speeches were also delivered by Academician Mirjana Živojinović, Anatoly Arkadyevich Turilov, foreign member of SASA, Professor Dr. Djordje Bubalo and Professor Dr. Viktor Savić.

LECTURES

On 12 March 2020, at the proposal of the SASA Department of Chemical and Biological Sciences, Academician Ivan Gutman delivered a lecture on *Energy of Graphs – From Chemistry to Spaceships* (Energija grafa – od hemije do svemirskih brodova) at the SASA.

On 15 January 2020, Dr. Laura Baudis, a professor at the University of Zurich, member of the CERN Scientific Committee and PPEC Chair, delivered a lecture at the SASA. The topic of her lecture was *All the Dark We Cannot See – Searches for Dark Matter in the Milky Way* (Materija koja nedostaje – potraga u Mlečnom putu). The lecture was held at the proposal of the SASA Department of Mathematics, Physics and Earth Sciences and in cooperation with the Vinča Institute of Nuclear Sciences.

On 19 February 2020, the SASA Institute for Balkan Studies organized the lecture of Jean-Paul Bled, Professor Emeritus at Sorbonne and foreign member of SASA, titled *180 Years of Cooperation Between Serbia and France*

(180 godina saradnje Srbije i Francuske) at the SASA on the occasion of 180th anniversary of the establishment of diplomatic relations between France and Serbia, in cooperation with the French Institute in Belgrade.

MEETINGS

On January 2020, the Central Institute for Conservation of the Ministry of Culture and Information of the Republic of Serbia organized the *Day of the Central Institute for Conservation* (Dan Centralnog instituta za konzervaciju) at the SASA.

On 7 February 2020, the SASA hosted the forum titled *Mihailo Markovic – Humanist, Scientist, Public Activist* (Mihailo Marković – humanista, naučnik, društveni radnik), which was organized by the Belgrade Forum for a World of Equals. The speeches were delivered by Professor Dr. Petar Škundrić, Profesor Dr. Slavko Gordić, Professor Dr. Zoran Avramović, Professor Dr. Milenko Govedarica and Živadin Jovanović, President of the Forum for a World of Equals.

The SASA Ethnographic Institute held the scientific conference on *Female Scientists in Society* (Naučnice u društvu) at the SASA, 11-13 February 2020.

The Joint Institute for Nuclear Research, Ministry of Education, Science and Technological Development of the Republic of Serbia and Chamber of Commerce of Serbia organized the *Days of the Joint Institute for Nuclear Research* (Dani Objedinjenog instituta za nuklearna istraživanja) at the SASA, 5-6 March 2020. This international organization from Dubna (Russia) includes 18 countries with member status and 6 countries with associate member status. Serbia has been its associate member since 2007.

The SASA Department of Technical Sciences and the SASA Institute of Technical Sciences organized an international conference titled *COST – European Network of Multidisciplinary Research to Improve the Urinary Stents*, which was held at the SASA, 5-7 March 2020.

The SASA Committee for the Serbian Question organized a scientific conference titled *Secession Through the Eyes of Domestic and International Law and Its Political Consequences* (Secesija sa stanovišta unutrašnjeg i međunarodnog prava i njene političke posledice), which was held in the SASA Grand Hall on 3 July 2020. The scientific conference was dedicated to secession and its international law and political consequences. It had 20 lecturers.

In July 2020, the SASA organized the award ceremony for students of the University of Arts Faculty of Applied Arts in Belgrade, who created the conceptual *SASA Golden Medal* designs.

The SASA Department of Social Sciences and the Belgrade University Faculty of Economics organized a symposium on *Inequality in Serbia (Part II)* (Nejednakost u Srbiji /drugi deo), which was held on 21 September 2020, and represents the continuation of cooperation between the Serbian Academy of Sciences and Arts and the Belgrade University Faculty of Economics, which began in 2018 with organizing the first part of the symposium titled *Inequality in Serbia* (Nejednakost u Srbiji) where this problem was considered from the economic and social aspects. This part of the symposium was dedicated to the economic aspects of inequality related, inter alia, to tax policy. An overview of the political and social circumstances leading to the increasing stratification of the population was also given.

On 13 October 2020, the Faculty of Mathematics of the University of Belgrade opened the *19th Serbian Astronomical Conference* that brings together domestic and foreign scientists in the field of astronomy and other related fields at the SASA.

On 21-22 October 2020, the Serbian Academy of Sciences and Arts and the Department of Philosophy of the University of Belgrade Faculty of Philosophy held a scientific conference titled *Philosophy and Science* (Filozofija i nauka) at which, for the first time in Serbia, scientists and philosophers, whose professional interests are at the “intersection” of science and philosophy, found themselves in the same place. The papers were presented by 45 participants.

On 28-30 October 2020, under the auspices of the Serbian Academy of Sciences and Arts and the Ministry of Education, Science and Technological Development of the Republic of Serbia, the SASA Institute for the Serbian Language held an international conference titled *Lexicography and Lexicology in the Light of Current Issues* (Leksikografija i leksikologija u svetlu aktuelnih problema). The structure of the conference consisted of the plenary section with four papers presented by leading European scientists, linguists and lexicographers; ten thematic sections (with 78 scientific papers presented by Serbian and foreign participants) and the regular annual session of the International Commission for Lexicology and Lexicography of the International Committee of Slavists.

The *Eighth Conference on Architecture* (Osma konferencija o arhitekturi) was held at the proposal of the SASA Department of Arts and under the auspices of the Serbian Academy of Sciences and Arts, 4-5 December 2020. The organizer of this conference was the Sustainable Urban Community Association – STRAND.

As part of the Human Rights Day, the SASA Department of Social Sciences and the Committee for the Study of National Minorities and

Human Rights organized a scientific conference titled *Thirty Years of the Implementation of the United Nations Convention on the Rights of the Child – Contemporary Aspects* (Trideset godina primene Konvencije Ujedinjenih nacija o pravima deteta – savremeni aspekti), which was held on 10 December 2020 online due to the Covid-19 pandemic. At the conference, 13 papers were presented within two blocks, *The Rights of the Child in Family Relations* (Prava deteta u porodičnim odnosima) and *Contemporary Frameworks and Contemporary Temptations* (Savremeni okviri i savremena iskušenja).

In September 2020, the Ministry of Labour, Employment, Veteran and Social Affairs of the Republic of Serbia organized, as a third party, a round table within the project “Job Training Methods: *New Chances for the Development of Adult Skills in the Republic of Serbia, Within the EU Programme for Employment and Social Innovation*” (Metode radnog osposobljavanja: *Nove šanse za razvoj veština odraslih u Republici Srbiji, u okviru EU Programa za zapošljavanje i socijalne inovacije*) at the SASA.

In 2020, due to the epidemiological situation, the Serbian Academy of Sciences and Arts did not organize its traditional reception for secondary school students who won one of the first three prizes in international competitions. The SASA sent the appropriate gifts to all prize winners at their home addresses in December 2020.

CYCLES OF LECTURES – CANCELLED

On 16 March 2020, due to the Covid-19 pandemic and the decisions brought by the Covid-19 Crisis Response Team, most scientific meetings envisaged by the Plan of Scientific Meetings for 2020 and the lectures envisaged by the Lecturers’ Plan for 2020 and Plan of Lecture Cycles for 2020 were postponed until the end of the year or until 2021. Several completely prepared meetings and lectures (invitations were already sent and an announcement appeared in the newspaper *Politika*), had to be cancelled at the last moment due to the worsened epidemiological situation and new measures issued by the Government of the Republic of Serbia. It was a question of two scientific meetings: one was dedicated to *Serbian Writers and the Serbian Theatre up to the First World War* (Srpski književnici i srpsko pozorište do Prvog svetskog rata), organized by the SASA Department of Language and Literature, and the other to *Protection, Preservation and Affirmation of Serbian Cultural Heritage in Kosovo and Metohija* (Zaštita, očuvanje i afirmacija srpskog kulturnog nasledja na Kosovu i Metohiji), organized by the SASA Committee for the Serbian Question. For the same reasons, the first lecture within the Cycle of Lectures *Controversies in Medicine* (Kontroverze u medicini) was

titled *Euthanasia – Legal, Theological and Psychiatric Aspects* (Eutanazija – pravni, teološki i psihijatrijski aspekti). The lectures had to be given by the President of SASA, Academician Vladimir S. Kostić, Academician Dušica Lečić Toševski, Professor Dr. Violeta Beširević and Professor Dr. Bogdan Lubardić.

COMMEMORATIVE MEETINGS

During 2020, eight members of the Serbian Academy of Sciences and Arts passed away (six full members and two corresponding members).

The commemorative meeting dedicated to the memory of the deceased full member of SASA, Dimitrije Stefanović (SASA General Secretary, 2007–2015), was held at the SASA on 26 October 2020. The speeches about Academician Dimitrije Stefanović's personality and work were given by Academician Kosta Čavoški, Secretary of the SASA Department of Social Sciences; Professor Dr. Danica Petrović, musicologist and the former Director of the SASA Institute of Musicology, and Dr. Melita Milin, musicologist and the former Director of the SASA Institute of Musicology.

The commemorative meeting dedicated to the memory of the deceased full member of SASA, Milorad Radovanović, Vice-President of the SASA Branch in Novi Sad, was held in the SASA Grand Hall on 28 September 2020. The speeches about Academician Milorad Radovanović's personality and work were given by Academician Zlata Bojović, Secretary of the Department of Language and Literature, Academician Predrag Piper and Academician Jasmina Grković-Major.

The commemorative meeting dedicated to the memory of the deceased full member of SASA, Marko Andjelović, SASA General Secretary, was held in the SASA Grand Hall on 7 October 2020. The speeches about Academician Marko Andjelković's personality and work were given by Academician Vladimir Kostić, SASA President, Academician Dragoslav Marinković, Academician Vladimir Stevanović, Professor Dr. Marina Stamenković Radak, Chair of the Department of Genetics and Evolution of the University of Belgrade Faculty of Biology, Professor Dr. Željko Tomanović, Dean of the University of Belgrade Faculty of Biology, and Scientific Advisor Mirjana Mihailović, Director of the Siniša Stanković Institute for Biological Research.

INTERNATIONAL COOPERATION

In 2020, the Serbian Academy of Sciences and Arts did not have the usually active year in the field of international cooperation. Due to the Covid-19

pandemic, SASA representatives did not travel abroad and almost all important meetings of international associations of academies were held online.

The Serbian Academy of Sciences and Arts is a member of non-governmental international scientific associations at different levels or, more precisely, at the global level: InterAcademy Partnership (IAP), International Council for Science (ISC), International Union of Academies (UAI) and UNESCO; at the European level: European Federation of National Academies of Sciences and Humanities (ALLEA), Alliance of International Science Organizations in the *Belt and Road* Region (ANSO), European Academy of Sciences and Arts (EASA), European Academy of Arts, Sciences and Humanities (EAASH) and European Science Foundation (ESF); at the regional level: *Global Round Table*, Euro-Mediterranean Academy Network (EMAN) and Danube Academies Conferences (DAC), and at the Balkan level: Inter-Academy Council for South-East Europe (IAC SEE).

In February 2020, the President of the SASA Branch in Novi Sad, Academician Stevan Pilipović, and the Secretary of the SASA Department of Mathematics, Physics and Earth Sciences, Academician Gradimir Muilovanović, participated as the SASA representatives in the symposium dedicated to the mathematicians Mihailo Petrović Alas and Josip Plemelj in Ljubljana. The symposium was organized by the Slovenian Academy of Sciences and Arts, Slovenačka Matica and Vuk's Endowment in Ljubljana.

The SASA Vice-President, Academician Ljubomir Maksimović, participated as a SASA representative in the online ALLEA General Assembly on 3 June 2020.

Academician Miodrag Čolić was elected a member of the IAP Advisory Committee for Covid-19.

Academician Miodrag Čolić participated in the online ISC Annual Meeting as a SASA representative in September 2020.

BILATERAL SCIENTIFIC COOPERATION UNDER THE CONCLUDED AGREEMENTS

The Serbian Academy of Sciences and Arts has concluded bilateral agreements on scientific (and artistic) cooperation with 23 national academies. These agreements cover 69 research projects and anticipate, for each side, the annual quota of 135 man/weeks for a non-foreign currency exchange of Serbian and foreign researchers.

This year, due to the Covid-19 pandemic, only 2 man/weeks were used.

COOPERATION WITH THE BULGARIAN ACADEMY OF SCIENCES

The current Thematic Cooperation Plan contains 21 joint projects, while the annual non-foreign currency exchange quota is 35 weeks for each side. Serbian researchers used two weeks, while Bulgarian researchers did not use the quota.

COOPERATION WITH THE HUNGARIAN ACADEMY OF SCIENCES

The Serbian Academy of Sciences and Arts concluded a new Protocol for the period 2020-2022 in December 2020 within which a new Thematic Plan with two joint projects was adopted.

COOPERATION WITH THE MACEDONIAN ACADEMY OF SCIENCES AND ARTS

The current Thematic Cooperation Plan contains 16 projects. This year there was no exchange of researchers.

COOPERATION WITH THE POLISH ACADEMY OF SCIENCES

The Thematic Plan contains five projects and the annual non-foreign currency exchange quota is 7 weeks for each side. This year there was no exchange of researchers.

COOPERATION WITH THE ROMANIAN ACADEMY

There are 19 joint projects. This year there was no exchange of researchers.

COOPERATION WITH THE SLOVAK ACADEMY OF SCIENCES

The SASA concluded a new Agreement on Bilateral Cooperation with the Slovak Academy of Sciences in September 2020. It also signed the Cooperation Programme anticipating that up to 5 *Mobility* projects would be approved for the period 2021-2022, while the number of weeks for the exchange of researchers was not fixed.

COOPERATION WITH THE SLOVENIAN ACADEMY
OF SCIENCES AND ARTS

The Thematic Plan contains five joint projects, while the annual quota for the exchange of researchers is two weeks each. This year there was no exchange of researchers.

COOPERATION WITH THE CZECH ACADEMY OF SCIENCES

The current Cooperation Protocol was signed in 2010. The annual quota for the exchange of researchers is 15 weeks each, while the Thematic Plan contains six projects. Out of the annual exchange quota of 15 weeks each, the two sides did not use any.

VISITS TO THE SASA

In October 2020, the Serbian Academy of Sciences and Arts was visited by H.E. Koen Adam, Ambassador of Belgium to the Republic of Serbia. He met with the President of SASA, Academician Vladimir S. Kostić and the Vice-President of SASA, Academician Ljubomir Maksimović.

In November 2020, the SASA was visited by the Serbian Minister of Education, Science and Technological Development, Branko Ružić. On this occasion, he met with the President of SASA, Academician Vladimir S. Kostić, SASA General Secretary, Academician Zoran Knežević, Vice-President of SASA, Academician Zoran Popović, and Vice-President of SASA, Academician Ljubomir Maksimović.

In December 2020, the SASA was visited by the Serbian Minister of Culture and Information, Maja Gojković. The meeting was attended by the President of SASA, Academician Vladimir S. Kostić, SASA General Secretary, Academician Zoran Knežević, Vice-President of SASA, Academician Zoran Popović, Vice-President of SASA, Academician Ljubomir Maksimović, President of the SASA Branch in Novi Sad, Academician Stevan Pilipović, Secretary of the SASA Department of Arts, Academician Milan Lojanica, and corresponding member of SASA, Svetislav Božić.

In December 2020, the Serbian Academy of Sciences and Arts was visited by the Rector's Collegium of the University of Priština, temporarily located in Kosovska Mitrovica. The meeting was attended by the President of SASA, Academician Vladimir S. Kostić, SASA General Secretary, Academician Zoran Knežević, Vice-President of SASA, Academician Zoran Popović, Vice-President of SASA, Academician Ljubomir Maksimović, Academician Dušan Otašević, Academician Nebojša Lalić, Corresponding Member of SASA

Vladica Cvetković, Corresponding Member of SASA Dragan Vojvodić, Corresponding Member of SASA Miodrag Marković, Corresponding Member of SASA Svetislav Božić, Rector of the University of Priština, temporarily located in Kosovska Mitrovica, Professor Zdravko Vitošević, Prorector of the University, Professor Jovan Bazić, and Manager of the University, Ljubiša Djordjević. The two institutions signed the Cooperation Protocol and, at the meeting, the proposals for future cooperation were defined.

In December 2020, the SASA was visited by Tatjana Matić, Serbian Minister of Trade, Tourism and Telecommunications. The meeting was attended by the President of SASA, Academician Vladimir S. Kostić, SASA General Secretary, Academician Zoran Knežević, Vice-President of SASA, Academician Zoran Popović, Vice-President of SASA, Academician Ljubomir Maksimović, Academician Dejan Popović and Academician Aleksandar Kostić.

PUBLISHING ACTIVITY IN 2020

1. *Almanac (Godišnjak) CXXVI* for 2019
2. *Bulletin of the SASA Fund (Bilten Fonda SANU)* for 2019
3. *Catalogue of the SASA Editions: 2018–2019–2020* (Katalog izdanja SANU: 2018–2019 –2020)
4. *Accession Speeches of Serbian Academicians (1886–1947)* (Pristupne besede srpskih akademika, 1886–1947), Vol. 1
5. *Slobodan Jovanović: život, delo, vreme*
6. *Slobodan Jovanović: Life, Work, Times*
7. *Slobodan Jovanović – On the Occasion of His 150th Birth Anniversary* (Slobodan Jovanović – povodom sto pedeset godina od rođenja)
8. *Vladan Djordjević: život, delo, vreme*
9. *Vladan Djordjević: Life, Work, Times*
10. *Secession Through the Eyes of Domestic and International Law and Its Political Consequences* (Secesija sa stanovišta unutrašnjeg i međunarodnog prava i njene političke posledice)
11. Dušica Simova-Tošić, *The Fauna of Phytophagous Gall Midge Species in Serbia* (Fauna fitofagnih vrsta muva galica u Srbiji)
12. *The Environmental Impact of Small Hydroelectric Power Plants* (Uticaj malih hidroelektrana na životnu sredinu)
13. *The Lives and Work of Serbian Scientists 17* (Život i delo srpskih naučnika 17)
14. *Fascinating World of Nanoscience and Nanotechnology* (Fascinantni svet nanonauka i nanotehnologija)

15. *Serbian Scientists in Power Electronics* (Srpski naučnici u energetskej elektronici)
16. *Glas CDXXX*, Department of Medical Sciences, Vol. 52
17. *Vladan Djordjević, portret neumornog stvaraoca*
18. *Vladan Djordjević, Portrait of a Tireless Begetter*
19. *SASA Dictionary* (Rečnik SANU), Vol. 21
20. *South Slavic Philologist* (Južnoslovenski filolog) LXXXV/2
21. *South Slavic Philologist* (Južnoslovenski filolog) LXXXVI/1
22. *Serbian Dialectological Proceedings* (Srpski dijalektološki zbornik) LXVI/1
23. *Serbian Dialectological Proceedings* (Srpski dijalektološki Zbornik) LXVI/2
24. *SASA Library Forum* (Tribina Biblioteke SANU), Year VIII, No. 8
25. *Socio-Political and Scientific Thought and Work of Dragoljub Jovanović* (Društveno-politička i naučna misao i delatnost Dragoljuba Jovanovića)
26. *Gender Equality – From Equal Rights to Equal Opportunities* (Rodna ravnopravnost – od jednakih prava do jednakih mogućnosti)
27. *Human Rights in the 21st Century*
28. *Kosovo and Metohija Proceedings* (Kosovsko-metohijski bornik) 8
29. *Duhovno i kulturno nasledje manastira Studenice – drevnost, postojanost, savremenost*
30. *Spiritual and Cultural Heritage of the Monastery Studenica – Past, Perseverance, Contemporaneity*
31. Gojko Subotić, Michitaka Suzuki. *Monastery of Saint John the Forerunner at Jašunja* (Manastir Svetog Jovana Preteče u Jašunji)
32. Exhibition Review (Izložbena sveska) 1, *Spiritual and Cultural Heritage of the Monastery of Studenica: Past, Perseverance, Contemporaneity*
33. *Terminological Dictionary of Visual Arts and Architecture* (Rečnik pojmova likovnih umetnosti i arhitekture), Vol. 2
34. Gorica B. Ljubenov, *Traditional Architectural Heritage in the Area of the Stara Planina – The Vanishing Architecture* (Tradicionalno arhitektonsko nasledje u regionu Stare planine – arhitekutra koja nestaje)
35. Igor Borozan, *Umetnički preobražaji Vlaha Bukovca*
36. Igor Borozan, *Artistic Transformation of Vlaha Bukovac*
37. *Ljuba Popović* (2nd Edition)

38. Jelena Mežinski Milovanović, *The Works of Aleksandar Deroko in the Art Collection of the Serbian Academy of Sciences and Arts* (Radovi Aleksandra Deroka u umetničkoj zbirci Srpske akademije nauka i umetnosti)
39. *Annals of the SASA Branch in Novi Sad* (Anali Ogranka SANU u Novom Sadu), No. 15
40. *Chronicle of the SASA Branch in Novi Sad* (Hronika Ogranka SANU u Novom Sadu), No. 9
41. Miro Vuksanović, *Characters of Milan Konjović* (Likovi Milana Konjovića (Novi Sad Branch))
42. *Chronicle of the SASA Branch in Niš* (Hronika Ogranka SANU u Nišu), No. 3
43. *Literary Work of Rade Drainac: New Reading* (Književno delo Rada Drainca: novo čitanje) (Niš Branch)
44. Ivan Gutman, Gorica Djelić, Vladimir Stevanović, *Chemical Stories from the Plant Kingdom* (Hemijske priče iz carstva biljaka) (Centre in Kragujevac)
45. From the Capital City to the Industrial Centre of Serbia – *Kragujevac in th Mid-19th Century* (Od prestonice do industrijskog centra Srbije – Kragujevac sredinom 19. veka) (Centre in Kragujevac)

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