

BIOGRAPHY OF PROFESSOR NADEŽDA PEJOVIĆ
BIOGRAFIJA PROFESORKE NADEŽDE PEJOVIĆ

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1 Biography

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This is an extended version of the biography, updated in the autumn of 2022, of Nadežda Nada Pejović, professor of astronomy at the Faculty of mathematics of the University of Belgrade. It does not cover only her scientific and professional work in astronomy, but also her activities in teaching, popularization of science and some details from her biography not directly connected to science and academic life. Among other things, in this text the reader will find the rise of a young and talented schoolgirl from the vicinity of Belgrade to the first woman astronomer at the prestigious Department of Astronomy at the Faculty of Mathematics in Belgrade. As sources for this text, the referee report for her election for full professor is used, but also other documents as well, such as yearbooks, news-paper clippings and various reports. Details from professor Pejović personal life were given by herself.



Nadežda Nada Pejović

NADEŽDA NADA PEJOVIĆ

Profesossor Nadežda Nada Pejović belongs to a somewhat older generation among still active Serbian astronomers. Coming from the territory of Belgrade through her talent and activity she has succeeded to distinguish herself as a respected teacher at the Faculty of Mathematics of Belgrade University. The text given below, together with the appendices, confirms that her scientific and technical bibliography is rich, as well as that her scientific, academic, teaching and pedagogical activities in astronomy have contributed significantly to the development of that science in Serbia.¹

Curriculum Vitae

Nadežda Nada Pejović was born on March 10, 1952 in Pudarci (Municipality of Grocka, Belgrade). Her maiden name is Matorčević, her mother's first name is Zlata (nee Ivković, born in Dubona by Mladenovac), her father's first name is Radomir. Lower forms of the primary school she finished in her birthplace, higher forms in a neighbouring settlement of Umčari. Her secondary education took place in XIII Beogradska gimnazija which she finished in 1971 in the framework of the curriculum with mathematics and natural sciences pointed out. During her schooling she was among the best pupils; she was awarded diplomas "Vuk Stefanović Karadžić" (general success) and "Mihailo Petrović Alas" (distinguishing in mathematics and natural sciences). She was especially interested in mathematics and the subjects of natural sciences. In the final form there was the subject of astronomy, which together with that of mathematics had a decisive influence on her choice of university course. Having finished the secondary education she enrolled herself at the Faculty of Sciences of the University of Belgrade to study astronomy where she took degree in 1976. Her further professional progress was continued through postgraduate studies at the same faculty. In 1984 she obtained the Master-of-Science (MSC) Degree, the title of the thesis was "*Prilog izučavanju kretanja Zemljinih polova*"(A Contribution to the Study of Motion of the Terrestrial Poles), the supervisor was Dr Dragutin Đurović (Belgrade University). After that she continued her studies in Czechoslovakia (Astronomical Institute of the Czechoslovak Academy of Sciences in Prague and Ondřejov near Prague) where she spent the school year of 1986/87 as a fellow of the Ministry of Science of the Republic of Serbia for the purpose of forming PhD thesis. The thesis was defended on February 2, 1989 in Belgrade at the Faculty of Sciences, its title is "*Globalna atmosferska cirkulacija i Zemljina rotacija*" (Global Atmospheric Circulation and Earth's Rotation), the supervisor was Dr Jan Vondrák from the Astronomical Institute of the Czechoslovak Academy of Sciences; at that time President of IAU Commission Earth's Rotation. The former Section of Mathematics, Mechanics and Astronomy of the Faculty of Sciences became thirty years ago a new faculty, Faculty of Mathematics (FM), as it is named also today.

Prof. Pejović's career at the Belgrade University started in 1977 when she at the Faculty of Sciences (Section of Mathematics, Mecahanics and Astronomy) became assistant trainee. In 1985 she became assistant. In 1989 she became a teacher, at first as a Lecturer or Senior Lecturer (UK), i. e. Assistant-Professor (US), then in 1996 as a Reader (UK), i. e. Associate Professor (US), to finally become Professor (UK), i. e. Full Professor (US). In the last two cases the institution was already FM. Prof. Pejović was retired on October 1, 2017. She lives in the Municipality of Novi Beograd, her husband's name is Milovan, they have two issues, a son Aleksandar and a daughter Ana.

¹ The data for curriculum vitae of Professor Pejović and the appendices for her collected Works were prepared during 2020, at the time when the pandemic caused by covid 19 paralysed the whole world.

Teaching Activity

During her career at the Astronomy Department of FM Prof. Pejović taught more than ten subjects. Already as an MSC student, then as an assistant, she led exercises on the following subjects *General Astronomy*, *Spherical Astronomy*, *Stellar Astronomy*, *Practical Astronomy*, *Mathematical Treatment of Astronomical Observations*. From the time when she became a teacher in 1989 her courses were *General Astronomy*, *Stellar Systems*. In the first decade of the XXI century she initiated teaching astronomy for students of mathematics so that she taught to them *General Astronomy* and *Spherical Astronomy*. She also taught at other faculties, for instance *Fundamentals of Astrophysics* to physics students at the Faculty of Physics in Belgrade and *Geodetic Astronomy* to geodesy students at the Faculty of Civil Engineering in Sarajevo between 1990 and 1992. At her own Department she taught or held consultations from a few subjects and special courses for MSC students, as well as later on to master and PhD students, such as: *Selected Chapters in Astronomy*, *Theory of Earth's Rotation*, *Stellar Systems II*, *Astronomy*. After the Bologna reform of teaching at the Belgrade University at FM her subjects were *General Astronomy I*, *General Astronomy II* for astronomy students, *Fundamentals of Astronomy* and *Introduction to Astronomy* for mathematics students, *Fundamentals of Astronomy* for informatics students.

Prof. Pejović was supervisor for the PhD of Goran Damljanović, an astronomer from the Astronomical Observatory in Belgrade. This thesis was in the framework of international Project Hipparcos. Prof. Pejović was also supervisor to a few MSC theses. She was a member in several commissions for both inspection and evaluation and examination of PhD theses, MSC theses, as well as later on, when the master degree was introduced, master works. She composed manuscript entitled *Opšta astronomija* (General Astronomy, reviewed in 1996), translated with colleagues Stevo Šegan and Zlatko Ćatović university textbook *Spherical Astronomy* by Robin Green. She also wrote together with Professor Šegan university textbook *Fundamentals of Astronomy* (e-edition).

Through her work on digitisation of university textbooks sold out long ago and hardly available and of collections of astronomical problems Professor Pejović has contributed these books in a digital form to have become a standard part of additional literature in teaching astronomy. The e-copies of these books are available now in the MF Virtual Library at <http://elib.matf.bg.ac.rs>. For instance, the following books have been digitised: *Celestial Mechanics*, *History of Astronomical Science from Its First Commencements to 1727*, as well as *Astronomical Theory of Climate Changes and Its Application in Geophysics* by Milutin Milanković, *General Astronomy I part - Spherical Trigonometry*, *Collection of Solved Problems from General Astronomy I part* (printed in 1956) and manuscript *Collection of Solved Problems from General Astronomy II part* by Vojislav Mišković. It should be mentioned that the second part of Mišković's problem collection had existed as a manuscript only which the author had prepared in the middle of the last century and had never been printed. Through digitisation this book became for the first time available to the students and broader public. These books by Mišković are still the only collections of astronomical problems written in Serbian, which emphasizes the importance of their digitisation. She has also digitised university textbooks *Opšta astronomija* (General Astronomy) by Branislav Ševarlić and Zaharije Brkić, *Teorijska astronomija* (Theoretical Astronomy) by Jovan Simovljević, *Osnovi teorije kretanja Zemljinih veštačkih satelita* (Fundamentals of Theory of Motion of Terrestrial Artificial Satellites) by Jovan Lazović and *Obrada astronomskih posmatranja* (Treatment of Astronomical Observations) by Dragutin Đurović which have been used and are still used in teaching astronomy at the Astronomy Department. Open access to the e-copies of these books has significantly contributed to the teaching and has enabled the students to better prepare and pass their exams.

Prof. Pejović has an exceptional talent for the pedagogical work. She was very keen and devoted to the work with students. In addition to the recollections of her students this can be also seen from a high presence to the lessons from optional subjects for students of mathematics and informatics to whom she

taught. About her popularity as a teacher says the fact that she was always among the best ranked teachers in the surveys wherein the students evaluate the work of their teachers.

Scientific and Professional Activity

In the beginning of Prof. Pejović's research work her field of interest was geodynamics, discipline wherein mathematico-dynamical models of the Earth are studied. Prof. Pejović's interest was focused on non-uniformities in the terrestrial rotation and motion of the poles. The themes of her MSC and PhD theses cover these subjects. The theoretical results obtained by her by analyzing the mathematical models agree well with the observational results. These results attracted international attention and have been cited several times. The papers of Prof. Pejović have been cited in Serbian journals and abroad. There are more than 300 citations in Google Scholar, out of this at least 40 in the leading international journals and international monographs.

Prof. Pejović has been also active in the fields of astrodynamics, astrometry, astroinformatics, cosmology and Galactic astronomy. The characteristics of the recent years are her interest in history of astronomy where she published several papers.

She has published more than 90 scientific papers in Serbia and abroad, also in conference proceedings, until the end of the year 2022. She has presented her results at scientific meetings in her country and abroad about 70 times. The professional and scientific activities have also occurred through her participation in the scientific projects. In this publication which consists of three volumes there are all papers, scientific and professional, published by Prof. Pejović, as well as her MSC and PhD theses.

MSC thesis *Prilog izučavanju kretanja Zemljinih polova* (A Contribution to the Study of Motion of the Terrestrial Poles) was defended in 1984 at the Faculty of Sciences of Belgrade University. The members of the examination commission were: Dr Dragutin Đurović (supervisor), Professor Branislav Ševarlić and Professor Jovan Simovljević. In this work the author carried out an extensive analysis of the coordinates of the instantaneous pole of the terrestrial rotation with respect to the Conventional International Conventional Pole (CIO), based on the data of the International Latitude Service (ILS) at Mizusawa for the period 1899.9-1979.0. On the basis of this analysis Prof. Pejović inferred that there exist secular variations in the pole coordinates, but that there was still uncertain whether that was due to the intrinsic polar motion or to the precession, proper motions of stars, etc. For the direction and speed of polar motion she obtained results close to those of some well known authors. By means of spectral analysis of Kimura's Z-term she established, in addition to the already known annual cyclical variation, another semiannual variation, which is a novel discovery.

PhD thesis *Globalna atmosferska cirkulacija i Zemljina rotacija* (Global Atmospheric Circulation and Earth's Rotation) was defended on February 2, 1989 at the Faculty of Sciences of Belgrade University. The members of the examination commission were: Professor Jan Vondrak (supervisor), Professor Dragutin Đurović and Professor Jovan Simovljević. The thesis concerns the mathematico-dynamical models of the Earth. The work is an extensive study of the influence of the global atmospheric circulation on the terrestrial rotation. The theme was very up-to-date, because for a precise guidance of space vehicles, as well as for reliable geophysical research, it was necessary to track the space orientation of the Earth to an accuracy which nowadays is of order of 10^{-4} arcseconds. In the solving of these tasks actual deviations of the global atmospheric circulation from the known models used in the computation of the Earth rotation parameters appear as a big problem. An important progress in the solving of this problem was achieved in the eighties, in the same decade when the thesis was defended. This occurred when the functions of the effective angular momentums of the atmosphere became available. They were computed from the global atmospheric data at three world meteorological centres following the algorithm proposed

by Barnes et al. in 1983. From that time the contribution of the atmospheric motion in the variations of the terrestrial rotation parameters was determined more precisely. Nevertheless, the following questions were still insufficiently studied:

- a. How significant is the ocean response to the changes of air pressure and if the inverse barometer hypothesis is sufficient to describe this response?
- b. What is the role of the wind term in the polar motion and if the available data have a sufficient density and precision for a polar motion computation of a high quality?
- c. Is the geophysical Earth model used by Barnes et al. adequate for the computation of the Earth response to the atmospheric extinction?
- d. Is the atmospheric circulation self-sufficient to excite the observed polar motion or there exist another excitation sources?

In her PhD thesis Prof. Pejović answers just these very up-to-date questions. After a short presentation of the state of the art she gives a short review of the theoretical background based on the Liouville equations for the terrestrial rotation. The atmospheric excitation was estimated by taking into account that the Earth is a deformable body consisting of: liquid core, viscous and elastic mantle and dynamical ocean. A special attention was focused on the question if a non-linear ocean response to the polar motion can cause a dependence of the Chandler nutation frequency on the amplitude of the total motion of the terrestrial poles. By comparison of the most contemporaneous theory (for that time) supplemented with new hypotheses with the observations interesting and novel results were obtained.

Published Papers

The scientific interests of Prof. Pejović are various covering several fields. Though her main research has been done in astronomy, she has been able to go beyond that science. Therefore, the published papers of Prof. Pejović can be divided into four groups.

In the first group there are papers concerning geodynamics. They are related to the mathematico-dynamical model of the Earth, with a special indication to the theory of motion of the terrestrial poles and non-uniformities in the rotation of the Earth. Prof. Pejović considers a geodynamical model of the Earth being composed of: liquid core, viscous and elastic mantle and dynamical ocean. A special attention in Pejović's research is focused on the influence of the global atmospheric circulation on the terrestrial rotation. She studies the ocean influence on the change of the air pressure, as well as the wind influence on the polar motion. She shows how a non-linear ocean response to the polar motion can cause the dependence of the Chandler nutation on the amplitude of the total motion of the terrestrial poles. In the papers of this group Prof. Pejović always insisted on theoretical models as good and as applicable as possible used for the purpose of solving particular problems, as well as on comparisons of the obtained results with the astronomical observations. These papers have been cited by many foreign authors in the well known journals. Some of these papers she published together with Jan Vondrák, who is an astronomer of world reputation. To the first group belong the papers resulting from the joint project *Dinamika Zemljimih večtačkih satelita i geodinamika - poređenje teorije i posmatranja* (Dynamics of Earth Artificial Satellites and Geodynamics – Comparison of theory and Observations) of the Serbian Academy of Sciences and Arts and the Czechoslovak Academy of Sciences for the period 1986-1990. Some of these papers from astrodynamics and geodynamics she published together with her colleague Stevo Šegan, who taught at FM.

In the second group there are papers from astrometry and astroinformatics. The topic is the computation of corrections to proper motions of stars from the Hipparcos Catalogue for the epoch 1991.25. This catalogue was compiled on the basis of the data collected during the observational mission on board of the Hipparcos satellite (HIPPARCOS - High Precision PARallax Collecting Satellite) launched in

August 1989. The satellite finished its work after almost four years. Since the Hipparcos mission lasted shortly, it was necessary to correct the proper motions of the stars. For the purpose of improving the accuracy of the Hipparcos Catalogue two million classical optical observations were used. They were collected during the XX century at observatories all over the world. In the treatment of this vast observational material Prof. Pejović worked successfully in the framework of a project of the International Astronomical Union (IAU). The project was accepted at the IAU General Assembly in Baltimore, 1988, its leader was Dr Jan Vondrak from Prague, then President of the IAU First Division (out of 12) IAU. The proper motions in declination were corrected for 2347 stars. The results were presented in the papers which Prof. Pejović wrote as coauthor with Dr Goran Damljanović from the Astronomical Observatory in Belgrade. Damljanović's PhD is from this field, the supervisor was Prof. Pejović.

The third group contains cosmology papers wherein a mathematical model of the Universe is studied. The subject is the standard, so-called Λ CDM model of the Universe. The fundamentals of this theory lie in the Einstein field equations the derivative of which are the Friedmann equations. In Prof. Pejović's papers the solutions of this system of differential equations satisfying a generalised power law are examined. This mathematical model corresponds to the era of dominating of the baryonic and dark matter in the overall evolution of the Universe. The fact that in these studies the theory of regularly varying functions founded by a well known Serbian mathematician, Jovan Karamata, is applied does them specially interesting. The papers of this group Prof. Pejović has chiefly written together with Professor Žarko Mijajlović (FM). They have been published in highly ranked journals of applied mathematics and theory of gravitation. Prof. Pejović has also published papers from Galactic astronomy with a coauthor, Dr Slobodan Ninković (Astronomical Observatory Belgrade).

The fourth group consists of papers covering history of astronomy wherein Prof. Pejović deals with pioneer articles and books in astronomy and related sciences written by Serbian authors in the past. Some of these rare books Prof. Pejović digitised and in her articles presented their contents, analysed their significance and indicated interesting facts concerning their publishing. Electronic copies of these books are in the FM Virtual Library (Virtual library, <http://elib.matf.bg.ac.rs>), the access is free so that the contents of this database are easily available to any person interested in them. Prof. Pejović specially studied and presented a collection of old books of Serbian astronomers which were written in the XVIII and XIX centuries. The oldest of them were written in the languages of Ancient Slavs or Serbian before Vuk Karadžić, or in Latin; they include: *Elementi matematičke* (Elements of Mathematics) by Ruđer Bošković (Venice, 1757, in Latin), *Večni kalendar* (Eternal Calendar) by Zaharije Stefanović Orfelin (Vienna, 1783), *Fizika* (Physics) by Atanasije Stojković (Buda, 1810), *Zvezdano nebo nezavisne Srbije* (Starry Sky of Independent Serbia) by Đorđe Stanojević (1882, Belgrade), *Kosmografija* (Cosmography) by Milan Andonović (1888, Belgrade), *Atomistika – Jedan deo iz filozofije Rudera Boškovića* (Atomistics – A Part from Philosophy of Ruđer Bošković) by Kosta Stojanović (Niš, 1892), *Nebeska mehanika* (Celestial Mechanics) by Milutin Milanković (Belgrade, 1935), *Osnovi matematične i fizičke geografije* (Fundamentals of Mathematical and Physical Geographies) by Pavle Vujević (Belgrade, 1924). In the Virtual Library there are also *Aritmetika* (Arithmetics) by Vasilije Damjanović, the first book on mathematics printed in Serbian (Venice, 1767), and *Čislenica* (Reckoning) by Jovan Došenović (Budapest, 1809). As Prof. Pejović notes, every written or printed word in the past, especially in a farther one, is part of the cultural heritage which is sufficient for these books to deserve attention and a special way of keeping. A part of these papers she published together with Prof. Žarko Mijajlović and docent Viktor Radović, in the framework of Project "Digitisation of Scientific and Cultural Heritage" of the Ministry of Science of the Republic of Serbia (RS). To be mentioned is that these papers have met a very positive reaction on the Internet. They have been cited more than 200 times, which can be tracked on Scholar Google. That for this kind of papers there exists interest in the world can be seen on the example of a collection of articles dealing with history of mathematics in India,

<http://www.pdfqueen.com>, where one can find the following article: *Digitization of mathematical textbooks used in Serbia in the past*, NCD Review, vol. 12, 55-64, 2008.

Other Activities

Prof. Pejović has delivered public lectures at People's University Kolarac, has appeared on radio and television. From 2002 she prepared talented pupils of secondary and primary schools for the participation in the national and international contests in astronomy. She founded in 2005 a facultative class of astronomy in the secondary school in Prokuplje, with the approval of the Ministry of Education of RS. She received in 2006 from the Municipality of Prokuplje Zahvalnicu (Certificate of Gratitude) for the contribution to the building of the mountain station of the Belgrade Observatory situated in the Mountain of Vidojevica near the town of Prokuplje. Another certificate of gratitude she got in 2019 from the Centre for the Promotion of Science of the Republic of Serbia for public lectures held in the framework of manifestation "May Month of Mathematics".

During the academic year of 2008/2009 she took an active part in the formation of new curricula in accordance with the Bologna process for the astronomy studies at FM. She has merits for the establishing of the study direction Astroinformatics at FM. She actively engaged in reincluding astronomy as a special subject in the secondary schools.

All mentioned activities of Prof. Pejović required much time, engagement, devotion and assiduity. Taking into account that her scientific work is presented in the book *Collected works of Nadežda Pejović*, <http://elib.matf.bg.ac.rs>, in detail, the following aspects of Prof. Pejović's activity will be subjected to additional treatment.

The first ideas to construct a mountain station of the Belgrade Observatory in the mountain named Vidojevica came from FM. The proposers were Prof. Stevo Šegan and Prof. Žarko Mijajlović. Prof. Pejović, then the head of FM Astronomy Department, joined this project in 2001. After the foundation of Astronomical Society "Magelanov oblak" (Magellanic Cloud) in Prokuplje it became possible to start looking for a suitable location, because it was intended to build an observational pavilion of this society. The society members were so much delighted with the top of the Vidojevica mountain as a possible location of the observational pavilion so that they proposed to FM and Observatory in Belgrade to build there a new professional observational station, the Astronomical Station of Vidojevica (ASV). The proposal was accepted and sponsored by the Ministry of Science and the construction could start. It was arranged to build a school pavilion within the ASV area for the purpose of teaching the students of astronomy, as well as a small pavilion for the necessities of the Society. In the gathering of the necessary documents Prof. Pejović took part as Head of Astronomy Department. She sent proper requests to the local authorities in Prokuplje. From the Municipality of Prokuplje she received in 2006 a certificate of gratitude for the contribution to the construction of ASV.

Simultaneously with the construction of the new station other activities in Prokuplje started. Namely many public lectures from astronomy, mathematics and informatics were organised by the Society "Magelanov oblak" in the rooms of the society, in the secondary school and in the Prokuplje primary schools. The lectures were delivered by teachers from FM and Faculty of Sciences in Niš, as well as by astronomers from the Belgrade Observatory. Prof. Pejović was among them.

Another important activity of Prof. Pejović in Prokuplje should be mentioned. Namely for a few years she led projects of one-year duration in the framework of the Programme of stimulating, promotion and dissemination of science, which were financed by the Ministry of Science of the Republic of Serbia. Among the project objectives was to form a facultative class for astronomy in the Prokuplje Secondary

School. The projects made it possible to finance the coming of lecturers from Belgrade, as well as assistants who for the facultative class at the Secondary School dealt in addition to lectures also with the preparations of pupils for national and international contests in astronomy. For the purpose of preparations of contestants not living in Belgrade Prof. Pejović digitised secondary school astronomy textbooks sold out long ago to include them in the FM Virtual Library. Exercises for the contestants were carried out by most active members of the Society ("Magelanov oblak"), then geography students at Belgrade University Aleksandar Valjarević and Aleksandar Simonović. An important support was given by Secondary School Director Dragan Krstić who is a mathematics teacher. All these activities were registered on the local television and radio of Prokuplje, local papers, but also in other daily papers (Politika, Večernje novosti, Blic).

Prof. Pejović organised the first participation of junior contestants (age 14-15) in the X International Astronomy Olympiad (IAO) held in Beijing in 2005. At the two previous IAO from Serbia there had been only senior contestants (age 16-17). Prof. Pejović in October 2005 became chairperson of the National Astronomical Olympic Committee (NAOC) of Serbia. This body was founded in 2002 by Prof. Jelena Milogradov Turin who was its first chairperson. Having become NAOC chairperson Prof. Pejović did many efforts to improve the preparations of the motivated pupils. At the Mathematical High School in Belgrade, she organized the first preparations for juniors, students of grades VII and VIII of elementary school, for participation in the International Astronomy Olympiad in Beijing in 2005. Eighteen teams from 16 countries competed. Our juniors won then the third place. This event was described in an interview published in the daily newspaper "Politicka" on November 9, 2005.

At Petnica Science Centre (PSC) Prof. Pejović actively worked on dissemination of astronomy. For almost two decades, during the eighties and nineties, she was a regular lecturer at the Winter Astronomy Seminar at PSC. It is well known that PSC is a unique institution in Serbia which has engaged in extra school education for pupils attending higher forms of the primary school and secondary school. As such it has become recognisable in Europe and outside of Europe. Prof. Pejović enthusiastically promoted the astronomical theory of planet insulation whose author is our and world great man Milutin Milanković. She promoted interesting facts and beautiful places of astronomical science through lectures devoted to themes, such as: Solar System, Sundials, Mathematica-dynamical model of the Earth, Motion of terrestrial poles, Time systems, Differential equations of planetary motion and The biggest telescopes of the world.

Prof. Pejović is an active member of Association "Milutin Milanković", which was founded in 2007 with the objective of promoting the image and achievements of that great man of ours and of the entire humanity. She has been a member of the Directory Board and secretary of this association. In 2011 she organised the cooperation between FM and Association "Milutin Milanković" in order to form a digital legacy of Milutin Milanković, <http://legati.matf.bg.ac.rs/milankovic>. The purpose of the legacy is to collect, unify and make easily accessible the entire scientific contribution to the world science of the great Serbian scientist, as well as to offer the facts from his biography. At that site one can find digital copies of his books, monographs, university textbooks, also the ones of all scientific papers published by him, to add the manuscripts of Milanković's university lectures. This portal contains many photographs and other documents which more closely throw light on his life, but also the books and papers written about Milanković by others. As a member of the Association Prof. Pejović has visited many schools throughout Serbia, where she promoted exhibitions and films about Milanković and delivered lectures like: Milanković's Cycles, Digital Legacy of Milutin Milanković, Milutin Milanković – Mysteries of Ice Periods. She has been several times guest of the primary school in Rabrovo near Kučevac named after the Serbian great man. At the Faculty of Economics, then Faculty of Mathematics in Belgrade and other institutions she delivered several lectures on Milutin Milanković and his astronomical theory of climate changes. In the rooms of the Association, Pop Lukina street 1b, she has organised several times a School

of Young Talents in astronomy, preparations of pupils for participation in international astronomy contests, student workshops and taking pictures with astronomical contents for various TV programmes.

Prof. Pejović is an active member of Astronomical Society “Ruđer Bošković” (ASRB). This society published between 1935 and 1940 science popular journal *Saturn*, to start a new journal with the same purpose in 1953 named *Vasiona* (Universe). This journal had regularly appeared by 2011, after a break caused by finances, its publishing started again in 2017. Thanks to Prof. Pejović who has organised digitisation of a few old Serbian astronomical journals the Serbian astronomical community has become aware of their existence. For instance, together with Prof. Mijajlović she contributed to collect, digitise and put to the Virtual Library of FM all issues of journal *Saturn* (whole period 1935-1940). Also, all issues of the *Vasiona* magazine, since its founding in 1953, have been fully digitized. Digital copies of the magazine were placed in the Virtual Library of the FM and thus became available to the general public. The most recent issues of *Vasiona*, concerning the period 2017-2020, put to the disposal by People's Observatory Belgrade, also have their e-copies in the Virtual Library of FM. At the People's Observatory (Kalemegdan, Belgrade), under the auspices of ASRB with interval of two years about Easter are organised conferences under the common title *Razvoj astronomije kod Srba* (Development of Astronomy among Serbs) by reputed Serbian astronomer Milan Dimitrijević. For more than a decade Prof. Pejović is a permanent participant of these meetings with communications chiefly concerning the digitisation of rare astronomical books from the XVIII, XIX and XX (first half only) centuries wherein the history of astronomy among Serbs is written out. Some of these books have been already mentioned: *Elementi matematike* (Elements of Mathematics) by Ruđer Bošković, *Večni calendar* (Eternal Calendar) by Zaharije Stefanović Orfelin, *Zvezdano nebo nezavisne Srbije* (Starry Sky of Independent Serbia) by Đorđe Stanojević and *Kanon osunčavanja* (Cannon of Insolation) by Milutin Milanković.

Accreditation of curricula is a new term which arose in 2005 when tertiary schools were formally recognised in Serbia. In that year a grand reform of teaching in tertiary schools and its adjusting to the Bologna declaration at the University of Belgrade and other universities in Serbia was carried out. Prof. Pejović as Department Head was a member of the accreditation team for teaching reform at FM from the first day. That was a hard, requiring and exhausting work followed with unavoidable frequent meetings, which lasted long time. For instance, it was necessary to form two separate one-semestre subjects instead of every two-semester subject, also one third of the mandatory subjects ought to have become optional, professional subjects had to be reduced to two thirds in order to get time for new subjects corresponding to general education, to add a number of other changes. From the academic year 2006/2007 FM has carried out reformed teaching and a new direction – informatics – was introduced. Bearing in mind this fact and following the new trends and technologies Prof. Pejović for the Astronomy Department proposed astroinformatics as a new direction for the studies, which was accepted. Also, for students of mathematics and informatics in addition to the already existing optional subject *Osnovi astronomije* (Fundamentals of Astronomy) new ones were introduced: *Uvod u astronomiju* (Introduction to Astronomy), *Uvod u mehaniku* (Introduction to Mechanics), *Mehanika* (Mechanics), *Opšta teorija relativnosti i kosmološki modeli* (General Relativity and Cosmological Models). In the framework of master studies for students of mathematics a new modulus *Astronomija i mehanika* (Astronomy and Mechanics), which included a number of new subjects concerning mechanics, was introduced.

In Serbia astronomy was taught as a special subject in schools already in the late XIX century till the beginning of the Second World War. From 1880 at the Grand School in Belgrade astronomy was taught by Milan Nedeljković, who founded the Astronomical Observatory in Belgrade. After him at the Belgrade University (in 1905 Grand School became University) astronomy was taught by famous scientist Milutin Milanković and Vojislav Mišković, who founded the new Astronomical Observatory at a new site in Belgrade. After the Second World War astronomy was a special subject in the secondary schools for direction of mathematics and natural sciences for 25 years, between 1969 and 1994. Unfortunately, by a decision of the Education Council of Serbia of June 28, 1990 astronomy ceased to exist as a special

subject and astronomy lessons were assigned to physics. So astronomy has been no longer taught in the secondary schools and then a painful struggle started to get it back, which has shown to be a Sisyphys work. Prof. Pejović together with professor Olga Atanacković and other her colleagues from the Department and from the Observatory took part in that struggle. From 2000 she has sent many requests to various addresses, such as the Ministry of Education and Sport of the Republic of Serbia, the National Education Council of the Republic of Serbia, Institution for Improving Education and Rearing, Institution for Evaluating Quality of Rearing and Education, Faculty of Physics, daily papers, even Television. Unfortunately, all these efforts have had no success. This was the reason for her to publish an article in daily papers "Politika" (Politics) on May 23, 2013 entitled: *Zahtev da astronomija ponovo bude poseban predmet* (Requirement for Astronomy to be a Special Subject Again).

In the framework of Project *Digitalizacija naučnog i kulturnog nasleđa* (Digitisation of Scientific and Cultural Heritage) Prof. Pejović was a member of a team consisting of colleagues from FM whose aim was to create the Virtual Library of FM, <http://elibrary.matf.bg.ac.rs>. This is the largest base of digitised books in Serbia with a free access. At the moment the Virtual Library contains more than 5000 books. Collections of PhD theses defended at FM and of rare books from the XVIII and XIX centuries are important items of this library. How rare these old books are can be seen from the fact that for some of them there exists only one copy so that such books are, practically, unavailable to the public. Only after digitisation they became easily available to pupils, students and other interested persons. Prof. Pejović has digitised almost all old Serbian books on astronomy. She has also made with the same team and within the same project digital legacies, <http://legati.matf.bg.ac.rs>. This digital portal has as its objective to make available to the public the great legacies of the most significant Serbian scientists from distant or near past who worked in mathematics. The first digital legacy to be created was that of Milutin Milanković, created in 2012. This is the first digital monument to that great man of the Serbian and world science. In addition to the legacy of Milutin Milanković digital legacies have been also created for Bogdan Gavrilović, Anton Bilić, Mihailo Petrović Alas, Zaharije Brkić, Đuro Kurepa and Slaviša Prešić. Professor Nada Pejović worked directly on the preparation of digital legacies of astronomers: Milutin Milanković, Zaharij Brkić, Jovan Simovljević and Jovan Lazović. She prepared also the book *Collected Works of Professor Dragomir Simeunović* in digital form and posted it in the Virtual Library. Besides that, she digitized and deposited in the *Virtual library* about ten his books, master thesis and doctoral dissertation. Let us mention that Simeunović was the last graduate of Milutin Milanković and that his thesis bears Milanković's signature.

Prof. Pejović is the first woman who became Professor at the Astronomy Department of the Faculty of Mathematics. To hear this we could from the talk of Prof. Olga Atanacković *Žene na Katedri za astronomiju* (Women at Astronomy Department) presented during the meeting *Žene u astronomiji* (Women in Astronomy) held on March 8, 2019 at FM. This meeting was dedicated to the International Day of women in Science (February 11) and to the jubilee of the hundredth anniversary of foundation of International Astronomical Union. Prof. Pejović was very proud of it, the fact that she became a part of history of Astronomy Department and that she taught at the same place where before renowned Milutin Milanković had taught.

APPENDICES

Scientific Meetings

Prof. Pejović has participated in more than 70 meetings organised in Serbia (or former Yugoslavia), as well as international ones. To emphasize are those meetings being done regularly within intervals between one and four years wherein Prof. Pejović has participated regularly or very often. Those are:

Nacionalna konferencija jugoslovenskih astrónoma (National conference of Yugoslav astronomers), she has been participating from 1977. After the final dissolution of the common state in 2006 this kind of meeting has been held every three years, it changed its name and now it is National Conference of Astronomers of Serbia. The continuity of the ordinal number is conserved and the last conference held in October 2020 was the 19th one. It is a conference with international participation, especially in the recent times, when the contribution of foreign participants is almost 50%.

Congress of mathematicians of Yugoslavia (held once in four years).

Congress of mathematicians, physicists and astronomers of Yugoslavia (held eight times, between 1949 and 1985, interval five years, some national astronomical conferences were part of its, in 1975, in 1980, in 1985)

Bulgarian–Serbian Conference on Astronomy and Space science (interval two years, even year).

Serbian-Belorussian Symposium on Physics and Diagnostics of Laboratory and Astrophysical Plasmas.

Serbian Conference on Spectral Line Shapes in Astrophysics.

Konferencija: Razvoj astronomije kod Srba (Development of Astronomy among Serbs, two years).

SEEDI International Conference: Digitization of cultural and scientific heritage (interval three years).

NCD konferencija Tehnologije i standardi: digitalizacija nacionalne baštine (Confrence Technologies and Standards: Digitization of National Heritage, once a year). Prof. Pejović has participated in each of these meetings from 2003.

Prof. Pejović has also participated in important international meetings:

International Symposium Geodesy and Physics of the Earth. Potsdam, 1988.

IAU (International Astronomical Union) General Assembly, Buenos Aires, 1991.

Earth Rotation, Reference System in Geodynamics and Solar System, Varšava, 1995.

Three conferences *IAU Colloquium*, Belgrade 1987 and 2004, Cambridge 2005.

Three conferences which were held under the auspices *AIP* (American Institute of Physics), Bucharest 2006, Sinaia 2007, Sremski Karlovci 2007.

Two conferences held under the auspices of *Astronomical Society of Pacific*, Side/Antalia 2006. and Sinaia 2006.

Prof. Pejović has also participated in jubilee meetings where the participants were by invitation:

Conference Fifty Years of Romanian Astrophysics, Bukurešt 2006.

International Conference 60 years of the Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, 2007, Sofia.

Konferencija: Đordje Stanojević- život i delo - povodom 150 godina od rođenja (Confrence: Đorđe Stanjević – Life and Work – dedicated to 150 years after his birth), 2008, Novi Sad.

Prof. Pejović has delivered a few invited lectures: „*Project ASV*“ in international meeting: The 5th Bulgarian–Serbian Conf. on Astron. and Space science, May 9–12, 2006, Sofia/Bulgaria and also „*Teaching of Astroinformatics at the University of Belgrade*“ na VII Bulgarian-Serbian Astronomical Conference: Astroinformatics, 1-4 June 2010, Chepelare-Rozen, Bulgaria.

Prof. Pejović has often directly engaged in organising scientific meetings. For instance, she was member of the Scientific Organising Committee (SOC) of XI (1996) and XIII (2002) National Conference of Yugoslav Astronomers with international participation, organised by Astronomy Department of the Faculty of Mathematics and under the auspices of the Federal Secretariat of Science of Yugoslavia and Ministry of Science, Technology and Development of the Republic of Serbia. She was a SOC member of the XIV (2005) National Conference organised by the Astronomical Observatory in Belgrade. She was co-chairperson, together with Dr Slobodan Jankov of the SOC for the XVI National Conference of Astronomers of Serbia in 2011. She has also participated in the organisation and programme committees of international conferences and those held in Serbia: Serbian-Bulgarian Conference of Astronomers, NCD and SEEDI conferences with subject of digitisation of scientific and cultural heritage and conference Development of Astronomy among Serbs.

Textbooks and translations.

Prof. Pejović has written alone or as a coauthor a few textbooks and translated one book.

1. N. Pejović, *Opšta astronomija* (General Astronomy), 1996, manuscript reviewed.
2. Translation of university textbook *Astronomija – klasika u novom rahu*, Vesta Company, Beograd, 1998. (original: Spherical Astronomy, Robin Green, Cambr. Univ. Press, 1985, IX+520pp). Translated by: S. Šegan, N. Pejović i Z. Ćatović.
3. N. Pejović, S. Šegan, university textbook *Osnovi astronomije* (Fundamentals of Astronomy) Matematički fakultet, electronic edition, 2006,

Citations.

Prof. Pejović's publications have been cited in both Serbian journals and international ones. In leading scientific journals and international monographs she has at least 40 citations, in each of the four fields where she has been active. According to Scholar Google she has more than 300 citations. About ten citations important enough are worth mentioning.

1. *Earth's model with variable Chandler's frequency*, Astron. Instit. Czech., Bulletin, **41**(1990). Citations:
 - D. Gilbert, M. Holschneider, J.L. Le Mouel, *Wavelet analysis of the Chandler wobble*, Jour. Geophys. Res. **103**(1998).
 - J. Vondrak, *Earth Rotation Parameters 1899.7–1992.0*, Surveys in Geophys. **20**(1999).
 - L. T. Liu, H. T. Hsu, B. X. Gao, B. Wu, *Wavelet analysis of the variable Chandler wobble*, Geophys. Res. Letters, **27**(2000).
 - J. Kaschenz, S. Petrović, *A methodology for the identification of periodicities in twodimensional time series*. Zeitschr. f. Vermessungswes., **134**(2009).
2. *Atmospheric excitation of polar motion - Comparison of the polar motion spectrum with spectra of effective atmospheric angular momentum functions*, Astron. Instit. Czech., Bulletin, **39** (1990). Citations:
 - T. M. Eubanks, Variations in the Orientation of the Earth, *Contributions of Space Geodesy to Geodynamics: Earth Dynamics*, **24**(1993, 2013).
 - B. Fong Chao , A. Y. Au, *Atmospheric excitation of the Earth's annual wobble: 1980–1988*, Jour. Geophys. Res. **96**(1991).
 - R. Hide, *Fluctuations in the Earth's rotation and the topography of the core-mantle interface*, Phil. Trans. Royal. Soc. **328**(1989).
3. *Polar motion: observations and atmospheric excitation*, Veroff. Zentralinst. Phys., Erde, 1988. Citations:
 - S. Šegan, I. Damjanov and B. Surlan, *Earth's rotation irregularities derived from ut_{bli} by method of multi-composing of ordinates*, Serb. Astron. Jour. **167**(2003).
 - H. P. Plag, *Chandler wobble and pole tide in relation to interannual atmosphere-ocean dynamics*, Tidal Phenomena, Springer 2005

4. *Astronomical heritage in NCD Virtual Library*, NCD Review **19**(2011). Citation:
- A.Martocchia, S. Marchionni, *Djordje Nikolić' "Yugoslavs in Astronomy"*, Semantic Scholar, Corpus ID: 219332281
5. *On asymptotic solutions of Friedmann equations*, Appl. Math. Computation, **219**(2012). Citation:
- S. Hossain, M. M. Moheuddin, M. S. A. Titu, *A New Mathematical Approach based on the Friedmann Equation*, IOSR Jour. Appl. Phys. **12**(2020).
6. *Twenty four manuscripts in the Virtual Library of the Faculty of mathematics in Belgrade*, NCD Review **25**(2014). Citation:
- V. Todorčević, M. Šegan-Radonjić, *Mihailo Petrović Alas: Mathematician and Master Fisherman*, The Mathematical Intelligencer, 2019 – Springer.
7. *Scientific papers of Milutin Milanković in his digital legacy*, NCD Review **25**(2015). Citation:
- Z. Ognjanović, B. Marinković, M. Šegan-Radonjić, *Cultural Heritage Digitization in Serbia: Standards, Policies, and Case Studies*, Sustainability **11**(2019)

Participation in Projects

During her academic career Prof. Pejović has taken part in several projects, national and international. The projects were in the field of astronomy, for some of them Prof. Pejović was the leader. She led from 1986 to 1990 the project Motion of Earth's Artificial Satellites and Geodynamics – Comparison between Theory and Observations in the framework of the cooperation between the Czechoslovak Academy of Sciences and Serbian Academy of Sciences and Arts. Then she together with colleague Stevo Šegan published a few common papers. In the period 2006-2009 she led the project Programme of Promotion and Stimulation of Science of the Ministry of Science of the Republic of Serbia. Between 2014-2017 she was also leader for the subproject of Project III44006 at MF, Digitisation of Scientific and Cultural Heritage. She has taken part in 10 scientific and professional projects, 7 within Serbia and 3 international.

1. Project from Astro-Geo Sciences of the Ministry of Science of Serbia, 1986-1990.
2. *Dynamics of Earth's Artificial Satellites and Geodynamics – Comparison between Theory and Observations*, cooperation between Serbian Academy of Sciences and Arts and Czechoslovak Academy of Sciences, 1986-1990. Project leader: N. Pejović.
3. *Physics and Motion of Celestial Bodies and Artificial Satellites*, Proj. 23, subproject *Geodynamics and Artificial Satellites*, 1990-1995. The project was financed by the Ministry of Science and Technology of the Republic of Serbia; project leader: Milan Dimitrijević.
4. *Astrometric, Astrodynamical and Astrophysical Investigations*, 1996-2000, financed by the Ministry of Science and Technology of the Republic of Serbia; project leader: M. Dimitrijević.
5. *WG ERHFR – IAU Working Group on Earth Rotation in the Hipparcos Reference Frame* (founded by Baltimor 1998, XX IAU General Assembly). Leader: Jan Vondrak.
6. *Digitisation of Scientific and cultural Heritage*, proj. 6201, period 2005-2007, financed by the Ministry of Sience and Technology of the Republic of Serbia. Leader: Žarko Mijajlović.
7. *Programme of Stimulation, Promotion and Popularisation of Science*, 2006-2009, financed by the Ministry of Sience and Technology of the Republic of Serbia. Through this project astronomy at schools was promoted, especially in Prokuplje, near which the construction of the observational station was being carried out. Leader: N. Pejović.
8. *Databases of Digital Images, Compression and Fast Search* Realisation: Serb. Acad. Sci. and Art i Bulg. Acad. Sci, 2007-2009, 2010-2013. Leaders: Žarko Mijajlović and Ognjan Kounchev.
9. *Application of Information Technologies in Digitisation of Scientific and Cultural Heritage*, projekt 13017, 2007-2010, financed by the Ministry of Sience and Technology of the Republic of Serbia. Leader: Žarko Mijajlović

- 10. Digitisation of Scientific and Culture Heritage**, III44006, period 2011-2020, by means of annexes continued from 2014 to 2022, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia. Project leader: Zoran Ognjanović, Director of the Mathematical Institute of the Serbian Academy of Sciences and Arts, leader of the subproject at FM was Žarko Mijajlović, after his retirement new subproject leader became Prof. Pejović, after her retirement the leader has been Nenad Mitić also from FM.

Administrative and Official Duties. Memberships

Almost during all her active work at FM, but also after retirement, Prof. Pejović has had important functions in the work of FM and professional societies. She was secretary of the Astronomy Department, member of the Council of FM, member of FM Directory Board, head of Astronomy Department (1999-2007, 2012-2016) and the member of the University of Belgrade Council for mathematics and physics. She was also a member of the Scientific Council of the Astronomical Observatory in Belgrade and a member of the FM Commission for construction of ASV near Prokuplje. She is member of Astronomical Society „Ruder Bošković“, Association „Milutin Milanković“ and of Astronomical Society „Magelanov oblak“ from Prokuplje, of Society of Astronomers of Serbia. She was a member of the National Astronomical Committee of Serbia, is member of European Astronomical Sosiety (EAS) and International Astronomical Union (IAU). She was the chairwoman of the National Astronomical Olympic Committee of Serbia and Deputy of President of the Society of Astronomers of Serbia.

Newspapers Articles

Prof. Pejović has written several articles for newspapers about astronomy: *U spomen Gagarinu* (In the memory of Gagarin), Blic daily papers, April 12, 2003, p. 24; Interview *Bronze astronomers* on the occasion of our team's participation in the international astronomy Olympiad in Beijing, daily newspaper Politika, November 9, 2005; *Beogradani u Manavgatu u Turskoj - fotografije potpunog pomračenja Sunca* (Belgraders in Manavgat in Turkey – Photographs of a Total Solar Eclipse), Politika daily papers March 31, 2006, p. 26; *Zahtev da astronomija ponovo bude poseban predmet* (Requirement Astronomy to be a Special Subject again) Politika daily papers May 23, 2013, p. 8; *Zašto naši najugledniji naučnici tvrde da HAARP ne može da deluje na vremenske prilike* (Why our Most Respectable Scientists Claim that HAARP can have No Influence on Weather), Politika daily papers May 25, 2014, p.10; *Prof. Jovan Lazović*, Politika daily papers, July 18, 2020, p. 9. She has also written a dozen of articles and reviews for journal of science dissemination *Vasiona*.

Appearing on TV

- RTS Programme for the diaspora, Magazin Srbija na vezi, *Digitalni legati Matematičkog fakulteta* (Digital legacies of Faculty of Mathematics), September 16, 2020, <https://www.youtube.com/watch?v=1x9MD23uKnE>
- Studio B Jutro sa Sanjom (A morning with Sanja), *Astronom Jovan Lazović - ko je bio i na čemu je radio?* (Astronomer Jovan Lazović – who he was and on what he worked), June 5, 2020, <https://www.youtube.com/watch?v=K-Sdrmml8Mc>
- During the 2010s she was a few times guest of the local TV of Prokuplje. The topic was the building of the Astronomical Observational Station in the Mountain of Vidojevica near Prokuplje.
- RTS 1, Belgrade Chronicle, XIII *Belgrade High School*, March 10, 2021.
- RTS Program for the Diaspora, Serbia Online Magazine, *Virtual Library of the Faculty of Mathematics*, March 17, 2021.
- RTS 1, Belgrade Chronicle, *Golden Graduates*, May 26, 2021.

2 Biografija

Napisao Slobodan Ninković
Novembar 2020, Beograd

Ovaj tekst predstavlja donekle proširenu verziju biografije, dopunjenu u jesen 2022, Nadežde Nade Pejović, profesorke astronomije na Matematičkom fakultetu Univerziteta u Beogradu. Biografija se ne odnosi samo na naučni i stručni rad u astronomiji, već takodže na njene aktivnosti u nastavi, popularizaciji nauke, a isto tako daje detalje iz njenog života koji nisu neposredno vezani za nauku i akademski život. Između ostalog, čitalac će ovde naći kako je jedna mlada i talentovana učenica iz okoline Beograda postala prva žena astronom na prestižnoj Katedri za astronomiju Matematičkog fakulteta u Beogradu. Prilikom pisanja ovog teksta koristili smo referat za njen izbor u zvanje redovnog profesora, ali takođe i dokumenta druge vrste, kao što su Spomenica Matematičkog fakulteta, novinski isečci i razni izveštaji. Detalje iz njenog ličnog života dala nam je profesorka Pejović.



Nadežda Nada Pejović

NADEŽDA NADA PEJOVIĆ

Profesorka Nadežda Nada Pejović pripada nešto starijoj generaciji još uvek aktivnih srpskih astronomata. Poreklom iz okoline Beograda uspela je da se svojim talentom i radom afirmiše kao uvažena profesorka Matematičkog fakulteta Beogradskog Univerziteta. Tekst koji sledi i prilozi svedoče da je njena naučna i stručna biografija bogata, a da su njene naučne, akademske, nastavne i pedagoške aktivnosti u astronomiji dale važan doprinos u razvoju ove nauke u Srbiji.¹

Biografija

Nadežda Nada Pejović rođena je 10. marta 1952. u Pudarcima kod Grocke u porodici Matorčević od oca Radomira i majke Zlate (deojačko Ivković iz Dubone kod Mladenovca). Niže razrede osnovne škole završila je u rodnom mestu, dok je više razrede završila u susednom mestu Umčari. Školovanje je nastavila 1967. u Beogradu, gde 1971 godine završava XIII Beogradsku gimnaziju prirodnometatičkog smera. Tokom školovanja bila je jedan od najboljih đaka i tim povodom dobila diplome Vuk Stefanović Karadžić i Mihailo Petrović Alas. Posebno je volela matematiku i predmete iz prirodnih nauka. U četvrtom razredu gimnazije imala je predmet astronomija, koji je zajedno sa predmetom matematika uticao na izbor njenih studija. Po završetku gimnazije upisala je studije astronomije na Odseku za matematiku, mehaniku i astronomiju Prirodno-matematičkog fakulteta (PMF) u Beogradu, gde je diplomirala 1976. Ovaj odsek je pre 30 godina prerastao u Matematički fakultet (MF). Dalje usavršavanje je nastavila upisom magistarskih studija astronomije na istom fakultetu. Magistarsku tezu *Prilog izučavanju kretanja Zemljinih polova* odbranila je 1984. pod rukovodstvom profesora Dragutina Đurovića. Posle magistrature dalje usavršavanje nastavila je u Pragu. Kao stipendista Ministarstva nauke Republike Srbije školske 1986/87 godine radi na doktorskoj disertaciji na Astronomskom institutu Čehoslovačke akademije nauka u Pragu, kao i na Opservatoriji Ondrejov kod Praga. Na Matematičkom fakultetu u Beogradu 2. februara 1989. odbranila je doktorsku disertaciju *Globalna atmosferska cirkulacija i Zemljina rotacija* pod rukovodstvom profesora Jana Vondraka, naučnog savetnika Astronomskog instituta Čehoslovačke akademije nauka. U to vreme profesor Vondrak bio je predsednik Komisije za Zemljinu rotaciju Međunarodne astronomске unije (International Astronomical Union, IAU).

Karijera prof. Pejović na Beogradskom univerzitetu počela je 1977. godine kada je izabrana za asistenta-pripravnika na Odseku za matematiku, mehaniku i astronomiju PMF. Za asistenta izabrana je 1985, u zvanje docenta 1989. i za vanrednog profesora 1996. U zvanje redovnog profesora izabrana je 2010. Spomenimo da se u vreme njenog izbora u profesorsko zvanje Matematički fakultet već izdvojio u zasebnu univerzitetsku instituciju. Profesorka Pejović otišla je u penziju 1. oktobra 2017. Živi na Novom Beogradu, udata je za Milovana i majka je dvoje dece, Aleksandra i Ane.

Nastavna delatnost

Kao profesor Matematičkog fakulteta u okviru svoje katedre profesorka Pejović predavala je preko deset predmeta. Već kao poslediplomac, a zatim kao asistent držala je vežbe iz predmeta *Opšta astronomija, Sferna astronomija, Zvezdana astronomija, Praktična astronomija, Matematička obrada*

¹ Podaci za biografiju profesorke Pejović i prilozi za njena sabrana dela pripremani su tokom 2020. godine, u vreme kada je pandemija izazvana Korona virusom paralisala čitav svet.

astronomskih posmatranja. Od izbora za nastavnika 1989. predavala je predmete *Opšta astronomija, Zvezdani sistemi*. U prvoj dekadi dve hiljaditih oživela je nastavu astronomije za studente matematike pa je na tim studijama predavala predmete *Opšta astronomija i Sferna astronomija*. Predavala je i na drugim fakultetima, na primer predmete *Osnovi astrofizike* za studente fizike na Fizičkom fakultetu u Beogradu i *Geodetsku astronomiju* za studente geodezije na Građevinskom fakultetu u Sarajevu, 1990-1992. Na svojoj katedri predavala je i držala konsultacije iz nekoliko predmeta i specijalnih kurseva na magistarskim studijama, a kasnije na master i doktorskim studijama: *Odabрана poglavља astronomije, Teorija Zemljine rotacije, Zvezdani sistemi II, Astronomija*. Posle Bolonjske reforme nastave na Beogradskom univerzitetu na matičnom fakultetu držala je predmete *Opšta astronomija I, Opšta astronomija II* za studente astronomije, *Osnovi astronomije i Uvod u astronomiju* za studene matematike, *Osnovi astronomije* za studente informatike.

U svojstvu mentora profesorka Pejović rukovodila je izradom doktorske disertacije Gorana Damljanovića, astronoma sa Astronomске opservatorije u Beogradu. Rad na ovoj disertaciji bio je u okviru međunarodnog projekta Hiparkos. Profesorka Pejović takođe je rukovodila izradom nekoliko magistarskih teza. Učestvovala je u više komisija za pregled i ocenu i komisija za odbranu doktorskih disertacija, magistarskih teza, a kasnije, po uvođenju ove kategorije studija, i master radova.

Napisala je rukopis *Opšta astronomija* (recenziran 1996. godine), prevela je sa kolegama Stevom Šeganom i Zlatkom Čatovićem univerzitetski udžbenik *Sferna astronomija* Robina Grina. Takođe je napisala zajedno sa profesorom Šeganom univerzitetski udžbenik *Osnovi astronomije* (elektronsko izdanje).

Svojim radom na digitalizaciji davno rasprodatih i teško dostupnih univerzitetskih udžbenika i zbirki zadataka iz astronomije, profesorka Pejović doprinela je da ove knjige, u digitalnoj formi, postanu standardni deo dopunske literature za nastavu astronomije. Elektronske kopije ovih knjiga sada su dostupne u Virtuelnoj biblioteci MF, <http://elib.matf.bg.ac.rs>. Na primer, digitalizovani su sledeći univerzitetski udžbenici i zbirke: *Nebeska mehanika, Istorija astronomiske nauke od njenih prvih početaka do 1727* kao i *Astronomska teorija klimatskih promena i njena primena u geofizici* Milutina Milankovića; *Opšta astronomija I deo - Sferna trigonometrija, Zbirka rešenih zadataka iz Opšte astronomije I deo* (štampana 1956) i rukopis *Zbirka rešenih zadataka iz Opšte astronomije II deo* Vojislava Miškovića. Spomenimo da je II deo Miškovićeve zbirke postojao samo u rukopisu koji je autor pripremio sredinom prošlog veka i nikada nije štampan. Digitalizacijom ova zbirka je po prvi put postala dostupna studentima i široj javnosti. Ove Miškovićeve knjige su do sada dve jedine zbirke zadataka iz astronomije napisane na srpskom, što posebno ističe značaj njihove digitalizacije. Takođe je digitalizovala univerzitetske udžbenike *Opšta astronomija* Branislava Ševarlića i Zaharija Brkića, *Teorijska astronomija* Jovana Simovljevića, *Osnovi teorije kretanja Zemljinih veštačkih satelita* Jovana Lazovića i *Obrada astronomskih posmatranja* Dragutina Đurovića koji su se koristili i još uvek se koriste u nastavi na Katedri za astronomiju. Otvoren dostup elektronskim kopijama ovih udžbenika znatno je doprineo nastavi, a studentima boljom pripremi i uspešnosti polaganja ispita.

Profesorka Nada Pejović ima izuzetno izražen smisao za pedagoški rad. U nastavi bila je veoma angažovana i posvećena radu sa studentima. Pored direktnog svedočenja studenata to se takođe moglo videti iz velike posećenosti nastavi izbornih predmeta za studente matematike i informatike koje je ona predavala. O njenoj popularnosti kao nastavnika govori i činjenica da se uvek nalazila pri vrhu studentskih anketa za ocenu rada profesora.

Naučni i profesionalni rad

U početku svog naučno istraživačkog rada profesorka Pejović bila je orijentisana na geodinamiku, oblast koja se bavi matematičko-dinamičkim modelom Zemlje. Njenu užu specijalnost činile su neravnomernosti Zemljine rotacije i kretanje Zemljinih polova. Teme njenog doktorata i magistarske teze su iz ovih oblasti. Teorijski rezultati koje je dobila analizom matematičkih modela saglasni su sa

rezultatima dobijenim iz astronomskih posmatranja. Ovi rezultati privukli su pažnju naučne javnosti u ovoj oblasti i citirani su više puta. Radovi profesorke Pejović citiraju se u domaćim i inostranim časopisima. Ima preko 300 citata u Google Scholar, od toga bar 40 u vodećim međunarodnim časopisima i međunarodnim monografijama.

Profesorka Pejović takođe je radila i u oblastima astrodinamike, astrometrije, astroinformatike, kosmologije i galaktičke astronomije. Poslednjih godina intenzivno radi i objavljuje radove iz istorije astronomije. Objavila je preko 90 naučnih radova u domaćim i stranim časopisima i zbornicima sa konferencija. Imala je oko 70 saopštenja na naučnim skupovima u zemlji i inostranstvu. Stručni i naučni rad takođe ostvaruje kao učesnik u naučnim projektima. U ovoj biografiji sabrani su njeni objavljeni naučni i stručni radovi, magistarski rad i doktorska disertacija.

Magistarski rad *Prilog izučavanju kretanja Zemljinih polova*, odbranila je 1984. na Matematičkom fakultetu Univerziteta u Beogradu pred Komisijom: profesor Dragutin Đurović (mentor), profesor Branislav Ševarlić i profesor Jovan Simovljević. U ovom radu autor daje opširnu analizu koordinata trenutnog pola Zemljine rotacije u odnosu na Međunarodni konvencionalni pol (CIO), baziranu na podacima Međunarodne službe širine (ILS) u Micusavi za period 1899.9-1979.0. Na osnovu te analize Pejović je zaključila da postoje sekularne promene koordinata pola, ali je i dalje neizvesno da li je to posledica stvarnog kretanja pola ili precesije, sopstvenih kretanja zvezda, itd. Za pravac i brzinu pomeranja pola dobila je rezultate bliske rezultatima nekih poznatih autora. Spektralnom analizom Kimurinog Z-člana našla je, pored poznate godišnje ciklične varijacije i polugodišnju varijaciju, što predstavlja sasvim novo otkriće.

Doktorsku disertaciju *Globalna atmosferska cirkulacija i Zemljina rotacija*, odbranila je 2. februara 1989. na Matematičkom fakultetu Univerziteta u Beogradu, pred komisijom: profesor Jan Vondrak (mentor), profesor Dragutin Đurović i profesor Jovan Simovljević. Disertacija se odnosi na matematičko-dinamički modeli Zemlje. Rad sadrži opširnu studiju uticaja globalne atmosferske cirkulacije na Zemljinu rotaciju. Tema je bila vrlo aktuelna, jer je za precizno upravljanje kosmičkim letilicama, kao i za pouzdana geofizička istraživanja neophodno pratiti orientaciju Zemlje u prostoru sa tačnošću koja se danas nalazi u granicama od nekoliko desetohiljaditih delova lučne sekunde. U rešavanju ovih zadataka veliki problem predstavljaju realna odstupanja globalne atmosferske cirkulacije od poznatih modela koji se koriste u računu parametara Zemljine rotacije. Značajan napredak u rešavanju ovog problema postignut je u to vreme ne tako davno, kad su postale dostupne funkcije efektivnih ugaonih momenata atmosfere, računate iz globalnih atmosferskih podataka u tri svetska meteorološka centra, po algoritmu koji su dali Barnes i drugi 1983. Od tada se preciznije određuje doprinos kretanja atmosfere u promenama parametara Zemljine rotacije. Ipak, ostala su nedovoljno proučena sledeća pitanja:

- a. Koliko je velika reakcija okeana na promene vazdušnog pritiska i da li je hipoteza invertnog barometra dovoljna da opiše ovu reakciju?
- b. Kolika je uloga člana vetra u polarnom kretanju i da li su raspoloživi podaci dovoljne gustine i preciznosti za kvalitetan račun polarnog kretanja?
- c. Da li je geofizički model Zemlje koji su koristili Barnes i drugi adekvatan za računanje Zemljine reakcije na atmosfersku ekscitaciju?
- d. Da li je atmosferska cirkulacija sama dovoljna da ekscituje posmatrano polarno kretanje ili postoje i drugi izvori ekscitacije?

U svojoj disertaciji Nada Pejović daje odgovore baš na ova aktuelna pitanja. Posle ukratko prikazanog stanja problema navodi i kratak pregled teorijskih osnova, baziranih na Liuvilovim jednačinama Zemljine rotacije. Procenjena je atmosferska ekscitacija uzimajući u obzir da je Zemlja deformabilno telo koje čini: tečno jezgro, viskozno-elastični omotač i dinamički okean. Posebna pažnja posvećena je pitanju da li nelinearna reakcija okeana na polarno kretanje može uzrokovati zavisnost frekvencije Čendlerove nutacije od amplitude ukupnog kretanja Zemljinih polova. Upoređujući u to vreme najsavremeniju teoriju dopunjenu novim hipotezama sa posmatranjima, dobijeni su interesantni i novi rezultati.

Objavljeni radovi

Naučna interesovanja profesorke Pejović su dosta široka i zahvataju nekoliko oblasti. Mada su njena glavna istraživanja bila u astronomiji, umela su i da izađu izvan okvira ove nauke. Otuda se objavljeni radovi profesorke Pejović mogu podeliti u četiri grupe.

U prvoj grupi su radovi iz oblasti Geodinamike. Radovi se u ovom slučaju odnose na matematičko-dinamički model Zemlje, s posebnim osvrtom na teoriju kretanja Zemljinih polova i neravnomernosti Zemljine rotacije. Nada Pejović razmatra geodinamički model Zemlje koji čine: tečno jezgro, viskozni omotač i dinamički okean. Posebnu pažnju u svojim istraživanjima posvećuje uticaju globalne atmosferske cirkulacije na Zemljinu rotaciju. Izučava uticaj okeana na promenu vazdušnog pritiska, kao i uticaj vetra na polarno kretanje. Pokazuje kako nelinearna reakcija okeana na polarno kretanje može uzrokovati zavisnost frekvencije Čendlerove nutacije od amplitude ukupnog kretanja Zemljinih polova. U radovima iz ove grupe Pejović je uvek vodila računa o što boljim i primenljivijim teorijskim modelima za rešavanje konkretnih problema, kao i poređenju dobijenih rezultata sa astronomskim posmatranjima. Ovi radovi citirani su od većeg broja stranih autora u poznatim časopisima. Neke od ovih radova objavila je sa Janom Vondrakom, svetski uglednim astronomom. U prvoj grupi su radovi urađeni u okviru zajedničkog projekta *Dinamika Zemljinih večtačkih satelita i geodinamika - poređenje teorije i posmatranja* Srpske i Čehoslovačke akademije nauka za period 1986-1990. Neke od ovih radova iz astrodinamike i geodinamike objavila je sa kolegom Stevom Šeganom, profesorom Matematičkog fakulteta u Beogradu.

U drugoj grupi nalaze se radovi iz astrometrije i astroinformatike. Radovi se bave izučavanjem popravki sopstvenih kretanja zvezda Hiparkos kataloga za epohu 1991.25. Ovaj katalog je dođen na osnovu podataka sakupljenih posmatračkom misijom Hiparkos satelita (HIPPARCOS - High Precision PARallax COLlecting Satellite) lansiranog avgusta 1989. Satelit je za nešto manje od četiri godine završio sa radom. Kako je posmatračka misija Hiparkos satelita kratko trajala, bila je neophodna popravka sopstvenih kretanja zvezda. Za povećanje tačnosti sopstvenih kretanja zvezda Hiparkos kataloga korišćeno je dva miliona klasičnih optičkih posmatranja sakupljenih tokom XX veka na opservatorijama širom sveta. Na obradi ovog opsežnog posmatračkog materijala profesorka Pejović je uspešno radila u okviru Projekta Međunarodne astronomске unije (IAU General Assembly, Baltimor 1988) kojim je rukovodio Jan Vondrak iz Praga, u to vreme predsednik Prve divizije (od dvanaest) IAU. Popravljena su sopstvena kretanja u deklinaciji za 2347 zvezda. Rezultati su predstavljeni u radovima koje je pisala u koautorstvu sa Goranom Damljanovićem, naučnim saradnikom Astronomске opservatorije u Beogradu. Damljanović je iz ove oblasti uradio doktorsku disertaciju pod rukovodstvom profesorke Pejović.

Treću grupu čine radovi iz kosmologije i bave se matematičkim modelom Kosmosa. Ovi radovi se odnose na standardni, tzv. Λ CDM model Kosmosa. Osnove ove teorije leže u Ajnštajnovim jednačinama polja čiji izvod predstavljaju Fridmanove jednačine. U radovima profesorke Pejović istražuju se rešenja ovog sistema diferencijalnih jednačina koja zadovoljavaju uopšteni stepeni zakon. Ovaj matematički model odgovara eri dominacije barionske i tamne materije u sveukupnoj evoluciji kosmosa. Posebnu zanimljivost ovih istraživanja predstavlja činjenica da se u njima koristi teorija pravilno promenljivih funkcija koju je zasnovao poznati srpski matematičar Jovan Karamata. Ove radove profesorka Pejović je uglavnom pisala u koautorstvu sa Žarkom Mijajlovićem, profesorom Matematičkog fakulteta. Radovi su objavljeni u visokorangiranim časopisima iz primenjene matematike i teorije gravitacije. Takođe je sa kolegom Slobodanom Ninkovićem, naučnim savetnikom Astronomске opservatorije u Beogradu, objavila radove iz galaktičke astronomije.

U četvrtoj grupi su radovi iz istorije astronomije u kojima se profesorka Pejović bavi pionirskim radovima i knjigama iz astronomije i srodnih nauka srpskih autora pisanih u prošlosti. Neke od ovih retkih knjiga profesorka Pejović je digitalizovala i u svojim radovima predstavila njihove sadržaje, analizirala njihov značaj i ukazivala na zanimljivosti vezane za ta izdanja. Elektronske kopije ovih knjiga nalaze se u Virtuelnoj biblioteci (Virtual library, <http://elib.matf.bg.ac.rs>)

Matematičkog fakulteta sa slobodnim pristupom i otuda su sadržaji ove Internet baze javno i lako dostupni zainteresovanoj publici. Profesorka Pejović posebno istražuje i predstavlja kolekciju starih knjiga srpskih astronomata koje su pisane u XVIII i XIX veku. One najstarije pisane su na starosrpskom jeziku i predvukovskim pismom, ili na latinskom, i uključuju: *Elementi matematike* Rudera Boškovića (Venecija, 1757, na latinskom), *Večni kalendar Zaharija Stefanovića Orfeline* (Beč, 1783), *Fizika Atanasija Stojkovića* (Budim, 1810), *Zvezdano nebo nezavisne Srbije* Djorda Stanojevića (1882, Beograd), *Kosmografija* Milana Andonovića (1888, Beograd), *Atomistika – Jedan deo iz filozofije Ruđera Boškovića* Koste Stojanovića (Niš, 1892), *Nebeska mehanika* Milutina Milankovića (Beograd, 1935), *Osnovi matematične i fizičke geografije* Pavla Vujevića (Beograd, 1924). U Virtuelnoj biblioteci nalaze se takođe *Aritmetika* Vasilija Damjanovića, prva knjiga iz matematike štampana na srpskom (Venecija, 1767) i *Čislenica* Jovana Došenovića (Budimpešta, 1809). Kako profesorka Pejović primećuje, svaka pisana ili štampana reč u prošlosti, naročito u daljoj, deo je kulturnog nasleđa, i već time ove knjige zaslužuju ovakvu pažnju i posebnu vrstu njihovog čuvanja. Deo ovih radova objavila je u koautorstvu sa kolegom Žarkom Mijajlovićem i docentom Viktorom Radovićem, u okviru projekta Digitalizacija naučne i kulturne baštine Ministarstva za nauku RS. Spomenimo da su ovi radovi doživeli veliki odziv na Internetu i citirani su više od 200 puta, što se može pratiti na Scholar Google. Da za ovu vrstu radova postoji zanimanje i u svetu, može se videti na primeru jedne kolekcije članaka iz istorije matematike u Indiji, <http://www.pdfqueen.com>, gde je postavljen članak *Digitization of mathematical textbooks used in Serbia in the past*, NCD Review, vol. 12, 55-64, 2008.

Ostale aktivnosti

Profesorka Pejović držala je predavanja u Istraživačkoj stanici Petnica, na Kolarčevom narodnom univerzitetu i govorila na radiju i televiziji. Od 2002. godine pripremala je talentovane učenike srednjih i osnovnih škola za učešće na međunarodnim olimpijadama iz astronomije. Osnovala je 2005. fakultativno odeljenje astronomije u Gimnaziji u Prokuplju, uz saglasnost Ministarstva prosvete Srbije. Dobila je 2006. od Opštine Prokuplje Zahvalnicu za doprinos izgradnji nove opservatorije na planini Vidojevica kod Prokuplja. Od Centra za promociju nauke Republike Srbije dobila je 2019. zahvalnicu za predavanja održana u okviru manifestacije “Maj mesec matematike”.

Tokom školske 2008/2009 aktivno je učestvovala u izradi novih programa prilagođenih Bolonjskom procesu za studije astronomije na Matematičkom fakultetu. Zaslужna je za uvođenje studijskog usmerenja Astroinformatika na Matematičkom fakultetu. Godinama je bila aktivno angažovana na vraćanju astronomije kao posebnog predmeta u gimnazije i srednje tehničke škole.

Sve navedene aktivnosti profesorke Nade Pejović iziskivale su mnogo vremena, truda, posvećenosti i predanosti. S obzirom da je njen naučni rad detaljno predstavljen u knjizi sabranih dela *Collected Works of Nadežda Pejović* (<http://elib.matf.bg.ac.rs>), osvrnimo se nešto više na sledeće oblasti njenog delovanja.

Pomenimo da su prve ideje oko izgradnje nove Astronomске stanice na Vidojevici (ASV) krenule sa Matematičkog fakulteta u Beogradu. Projekat su pokrenuli profesori Stevo Šegan i Žarko Mijajlović, kojima se pridružila Nada Pejović, tada šef Katedre za astronomiju MF. Naime, 2001. posle osnivanja Astronomskog društva “Magelanov oblak” u Prokuplju, krenulo se u potragu za odgovarajućom lokacijom povodom izgradnje posmatračkog paviljona Društva. Članovi Društva bili su toliko oduševljeni vrhom planine Vidojevice kao mogućom lokacijom za posmatrački paviljon, da su predložili Matematičkom fakultetu i Astronomskoj opservatoriji u Beogradu da se na tom mestu izgradi nova profesionalna opservatorija, odnosno Astronomска stanica Vidojevica. Predlog je prihvacen i uz pomoć Ministarstva za nauku gradnja nove opservatorije je započeta. Dogovoren je da se u krugu ASV izgradi školski paviljon za studente MF, kao i mali paviljon za članove Društva. Pri sakupljanju odgovarajuće dokumentacije za ASV, Nada Pejović se aktivno uključila šaljući, kao šef Katedre za astronomiju, odgovarajuće dopise nadležnim vlastima u Prokuplju. Od Opštine Prokuplje 2006. dobila je Zahvalnicu za doprinos u izgradnji Astronomske stanice na Vidojevici.

Uporedno sa izgradnjom nove opservatorije, krenule su i druge aktivnosti u Prokuplju. Naime, Astronomsko društvo "Magelanov oblak" organizovalo je niz predavanja iz astronomije, matematike i informatike u prostorijama Društva, u Gimnaziji i osnovnim školama u Prokuplju. Predavanja su držali profesori sa MF u Beogradu, PMF u Nišu i sa Astronomске opservatorije u Beogradu (AOB). Nada Pejović je bila jedan od aktivnih predavača.

Spomenimo još jednu značajnu aktivnost profesorke Pejović u Prokuplju. Naime, nekoliko godina Nada Pejović je bila rukovodilac jednogodišnjih projekata "Program podsticanja, promocije i popularizacije nauke u Prokuplju", koji su finansirani od strane Ministarstva za nauku Republike Srbije. U okviru tih projekata formirano je fakultativno odeljenje astronomije u Gimnaziji u Prokuplju. Iz ovih projekata je finansiran dolazak predavača iz Beograda, kao i saradnika koji su za fakultativno odeljenje u Gimnaziji osim predavanja obavljali i pripreme učenika za učešće na domaćim takmičenjima i međunarodnim olimpijadama iz astronomije. Za pripreme olimpijaca van Beograda profesorka Pejović je digitalizovala davno rasprodstate srednjoškolske udžbenike iz astronomije i postavila ih u Virtuelnu biblioteku MF. Praktične vešbe za olimpijice izvodili su najaktivniji članovi društva "Magelanov oblak", tada studenti geografije Aleksandar Valjarević i Aleksandar Simonović. Posebnu podršku pružio je direktor Gimnazije i professor matematike Dragan Krstić. Sve ove aktivnosti bile su propraćene na lokalnoj televiziji i programima radio stanica u Prokuplju, u lokalnim novinama ali i u dnevnoj štampi (Politika, Večernje novosti, Blic).

Profesorka Nada Pejović je organizovala prvo učešće juniorske grupe đaka (starost 14-15 godina) na X međunarodnoj astronomskoj olimpijadi (MAO) u Pekingu 2005. Na prethodnoj MAO iz Srbije su se takmičili samo seniori (starost 16-17 godina). Prof. Pejović je 2005. došla na čelo Nacionalnog astronomskog olimpijskog komiteta (NAOK) za Srbiju. Ovo telo je osnovala 2002. godine prof. Jelena Milogradov Turin koja je bila njegov prvi predsednik. Kada je postala predsednik NAOK, prof. Pejović je učinila znatan napor u cilju poboljšanja priprema motivisanih učenika. Organizovala je u Matematičkoj gimnaziji u Beogradu prve pripreme juniora, đaka VII i VIII razreda osnovne škole, za učešće na Međunarodnoj astronomskoj olimpijadi u Pekingu 2005. Takmičilo se 18 ekipa iz 16 zemalja. Naši juniori osvojili su treće mesto. U intervjuu objavljenom u dnevnom listu "Politicka" od 9.11.2005 opisan je ovaj događaj.

U Petnici profesorka Pejović je aktivno radila na popularizaciji astronomije. Skoro dve decenije, tokom osamdesetih i devedesetih godina prošlog veka bila je redovni predavač na Zimskom seminaru iz astronomije u Petnici. Znamo da je Istraživačka stanica Petnica jedinstvena institucija u Srbiji koja se bavi naučnim vanškolskim obrazovanjem starijih razreda osnovaca i srednjoškolaca. Kao takva, ova ustanova postala je prepoznatljiva u Evropi i svetu. Profesorka Pejović je sa entuzijazmom promovisala Astronomsku teoriju osunčavanja planeta našeg i svetskog velikana Milutina Milankovića. Promovisala je zanimljivosti i lepote iz astronomskih nauka predavanjima sa temama poput: Sunčev sistem, Sunčani časovnici, Matematičko-dinamički model Zemlje, Kretanje Zemljinih polova, Sistemi vremena, Diferencijalne jednačine kretanja planeta, Najveći teleskopi sveta.

Profesorka Pejović aktivan je član Udruženja "Milutin Milanković", koje je osnovano 2007. s ciljem da promoviše lik i delo našeg i svetskog velikana. Bila je član Upravnog odbora i sekretar ovog udruženja. Organizovala je 2011. saradnju Matematičkog fakulteta i Udruženja Milutin Milanković na izradi Digitalnog legata Milutin Milanković, <http://legati.matf.bg.ac.rs/milankovic>. Cilj legata je da sakupi, objedini i učini lako dostupnim sav naučni doprinos svetskoj nauci našeg velikog naučnika kao i njegov živototpis. U Legatu se nalaze digitalne kopije njegovih knjiga, monografija, univerzitetskih udžbenika, zatim svih naučnih rada koje je objavio, kao i rukopisi njegovih univerzitetskih predavanja. Ovaj portal sadrži mnoge fotografije i druge dokumente koje bliže osvetljavaju njegov život, ali i knjige i radeve koje su o Milankoviću napisali drugi autori. Sa Udruženjem obilazila je škole po Srbiji, gde je promovisala izložbe i filmove posvećene Milankoviću i držala predavanja poput: Milankovićevi ciklusi, Digitalni legat Milutina Milankovića, Milutin Milanković - tajne ledenih doba. Više puta je bila gost Osnovne škole u Rabrovu kod Kučeva koja nosi ime našeg velikana. Na Ekonomskom fakultetu i Matematičkom fakultetu u Beogradu i drugim ustanovama održala je više predavanja na temu Milutin Milanković i njegova astronomска teorija

klimatskih promena. U prostorijama Udruženja, Pop Lukina 1b, organizovala je u nekoliko navrata Školu mlađih talenata iz astronomije, pripreme đaka za učešće na međunarodnim astronomskim olimpijadama, studentske radionice i snimanje priloga iz astronomije za razne TV stanice.

Profesorka Pejović aktivna je član Astronomskog društva Ruder Bošković (ADRB). Ovo društvo je od 1935. do 1940. izdavalo naučno-popularni časopis *Saturn*, a od 1953. do 2020, i dalje izdaje časopis sličnog profila, *Vasiona*. Časopis nije štampan u periodu od šest i po godina, u intervalu 2011-2017, zbog finansijskih poteškoća. Profesorka Pejović je pokrenula inicijativu i organizovala digitalizaciju nekoliko starih srpskih časopisa iz astronomije. Tako je zajedno sa profesorom Mijajlovićem organizovala da se svi brojevi časopisa *Saturn* (kompletan period 1935-1940) sakupe, digitalizuju i postave u Virtuelnu biblioteku Matematičkog fakulteta. Takođe, u potpunosti su digitalizovani svi brojevi časopisa *Vasiona*, od osnivanja 1953. godine. Digitalne kopije časopisa postavljene su u Virtuelnu biblioteku MF i tako su postale dostupne širokoj javnosti. Naš astronom Milan Dimitrijević organizuje svake druge godine u okviru AD "Ruder Bošković" na Narodnoj opservatoriji na Kalemegdanu oko Vaskrsa konferenciju *Razvoj astronomije kod Srbija*. Više od decenije profesorka Pejović je redovan učesnik ovih skupova sa saopštenjima uglavnom o digitalizaciji retkih astronomskih knjiga iz XVIII., XIX. i prve polovine XX veka u kojima je ispisana istorija astronomske nauke kod Srba. Neke od tih knjiga su već pomenute: *Elementi matematike Ruder Boškovića*, *Večni kalendar Zaharija Stefanovića Orfelina*, *Zvezdano nebo nezavisne Srbije* Đorda Stanojevića i *Kanon osunčavanja* Milutina Milankovića.

Akreditacija nastavnih programa je novi termin nastao 2005. prilikom formalnog priznavanja visokoškolskih ustanova u Srbiji. Te godine sprovedena je velika reforma visokoškolske nastave i njenog prilagođavanja Bolonjskoj deklaraciji na Beogradskom univerzitetu i drugim univerzitetima u Srbiji. Profesorka Pejović je ispred svoje katedre od prvog dana bila uključena u Akreditacioni tim za reformu nastave na Matematičkom fakultetu. To je bio težak, zahtevan i iscrpljujući posao koji je iziskivao česta okupljanja, duge i zamorne sastanke. Na primer, trebalo je dvosemestralne predmete podeliti na jednosemestralne, od obaveznih predmeta jednu trećinu prebaciti u izborne, od stručnih trećinu prebaciti u opšteobrazovne predmete, kao i uraditi niz drugih promena. Od školske 2006/2007 Matematički fakultet izvodi reformisanu nastavu i uveden je novi smer Informatika. Imajući u vidu ovu činjenicu i prilagođavajući se novim trendovima i tehnologijama, na predlog i zalaganje profesorce Pejović na Katedri za astronomiju uvedeno je novo usmerenje Astroinformatika. Takođe, na smeru Matematika i smeru Informatika uvedeni su pored postojećeg *Osnovi astronomije* i novi izborni predmeti *Uvod u astronomiju*, *Uvod u mehaniku*, *Mehanika*, *Opšta teorija relativnosti i kosmološki modeli*. Na master studijama na smeru Matematika uveden je novi modul *Astronomija i mehanika*, koji pored postojećih astronomskih uključuje i niz novih predmeta iz mehanike.

U Srbiji se astronomija izučavala kao poseban predmet u školama već krajem XIX veka pa sve do početka Drugog svetskog rata. Od 1880. na Velikoj školi u Beogradu astronomiju je predavao prof. Milan Nedeljković, osnivač Astronomске opservatorije u Beogradu. Posle njega na Beogradskom univerzitetu (Velika škola je 1905. prerasla u Univerzitet) astronomiju su predavali naš slavni naučnik Milutin Milanković, a potom Vojislav Mišković. Spomenimo da je Mišković osnovao novu Astronomsku opservatoriju na brdu Veliki Vračar, u ono vreme na periferiji Beograda, koje je ubrzo po opservatoriji dobilo ime Zvezdara. U posleratnom periodu astronomija je bila poseban predmet u gimnazijama prirodno-matematičkog smera tokom 25 godina, u periodu 1969-1994. Na žalost, odlukom Prosvetnog saveta Srbije 28. juna 1990. astronomija je ukinuta u gimnazijama i njeni časovi su dodeljeni predmetu fizika. Đaci upisani do ovog datuma ipak su imali astronomiju kao zaseban predmet, sve do 1994. Od tada je prestalo izučavanje astronomije u srednjim školama i od tada kreće mukotrpsna borba za njeno vraćanje, što se ispostavilo da je to takoreći sizifoski posao. U tu borbu, u kojoj su učestvovali mnogi profesori Katedre za astronomiju MF i Astronomске opservatorije, od 2000. se uključila i Nada Pejović. Više puta je zajedno sa profesorkom Olgom Atanacković tim povodom pisala dopise i molbe Ministarstvu prosvete i sporta Republike Srbije, Nacionalnom prosvetnom savetu Republike Srbije, Zavodu za unapređenje obrazovanja i vaspitanja, Zavodu za vrednovanje kvaliteta obrazovanja i vaspitanja, Fizičkom fakultetu, pa i dnevnim novinama i TV

medijima. Nažalost, ovi napori su ostali bez uspeha. Na tu temu objavila je članak *Zahtev da astronomija ponovo bude poseban predmet* u dnevnom listu Politika, 23. maja 2013.

U okviru projekta *Digitalizacija naučnog i kulturnog nasleđa* Profesorka Pejović je radila sa timom kolega sa Matematičkog fakulteta na stvaranju Virtuelne biblioteke Matematičkog fakulteta Univerziteta u Beogradu (*Virtual library*, <http://elibrary.matf.bg.ac.rs>). Ovo je najveća baza digitalizovanih knjiga u Srbiji sa slobodnim pristupom. U ovom trenutku Virtuelna biblioteka sadrži preko 5000 knjiga. Važne kolekcije u okviru ove biblioteke su zbirka doktorskih disertacija odbranjenih na Matematičkom fakultetu i zbirka retkih knjiga iz XVIII i XIX veka. Većina ovih knjiga su rariteti, neke od njih postoje samo u jednom primerku i praktično su nedostupne javnosti. Tek digitalizacijom postale su lako dostupne đacima, studentima i široj javnosti. Profesorka Pejović je digitalizovala skoro sve srpske stare knjige iz astronomije. Takođe je sa istim timom i u okviru istog projekta radila na izradi digitalnih legata zaslužnih srpskih astronoma i matematičara, <http://legati.matf.bg.ac.rs>. Ovaj digitalni portal ima za cilj da širokoj javnosti učini dostupnom veliku zaostavštinu najznačajnijih srpskih naučnika iz dalje i bliže prošlosti koji su se bavili matematičkim наукама. Prvi urađen digitalni legat bio je legat Milutin Milanković, urađen 2012. godine. Ovo je prvi digitalni spomenik velikanu srpske i svetske nauke. Pored legata Milutin Milanković urađeni su digitalni legati posvećeni profesorima: Bogdanu Gavriloviću, Antonu Bilimoviću, Mihailu Petrović Alasu, Zahariju Brkiću, Đuri Kurepi, Slaviši Prešiću, Jovan Simovljeviću i Jovanu Lazoviću. Profesorka Nada Pejović je radila na priređivanju digitalnih legata astronoma: Milutina Milankovića, Zaharija Brkića, Jovana Simovljevića i Jovana Lazovića. Pripremila je u digitalnoj formi knjigu *Sabrana dela profesora Dragomira Simeunovića*, profesora matematike na Rudarsko-geološkom fakultetu Univerziteta u Beogradu. Sa profesorom Mijajlovićem digitalizovala je desetak udžbenika i zbirki zadataka, kao i diplomski rad i doktorsku disertaciju profesora Simeunovića. Spomenimo da je Simeunović bio poslednji diplomac Milutina Milankovića i da se na njegovom diplomskom radu nalazi Milankovićev potpis.

Profesorka Pejović je prva žena - profesor astronomije na Katedri za astronomiju Beogradskog univerziteta. Za ovaj podatak se saznao iz izlaganja prof. Olge Atanacković *Žene na Katedri za astronomiju*, na skupu *Žene u astronomiji* održanom 8. marta 2019 na Matematičkom fakultetu u Beogradu, povodom obeležavanja Međunarodnog dana žena u nauci (11. februar) i obeležavanja jubileja 100 godina Međunarodne astronomske unije. Profesorka Pejović je bila veoma ponosna na to saznanje, činjenicu da je postala deo istorije Katedre za astronomiju i da je predavala na istoj Katedri na kojoj je pre nje predavao slavni Milutin Milanković.

PRILOZI

Naučni skupovi

Profesorka Pejović učestvovala je na više od 70 domaćih i međunarodnih skupova. Posebno se izdvajaju učešća na sledećim konferencijama koje se održavaju periodično sa intervalima od jedne do četiri godine, a na kojima profesor Pejović učestvuje redovno ili veoma često:

Nacionalna konferencija jugoslovenskih astronomata, učestvuje od 1977. Po finalnom nestanku zajedničke države 2006. godine ovaj periodični skup, drži se svake treće godine, menja naziv i danas je to Konferencija astronomata Srbije. Ipak je zadržan kontinuitet u rednom broju i poslednja konferencija ove vrste održana je 2020. pod nazivom SAC XIX (19. Serbian Astronomical Conference). Ova konferencija ima međunarodni karakter s obzirom da je skoro polovina učesnika iz inostranstva.

Kongres matematičara Jugoslavije (održava se jednom u četiri godine).

Bulgarian–Serbian Conference on Astronomy and Space science (održava se svake druge godine).

Serbian-Belorussian Symposium on Physics and Diagnostics of Laboratory and Astrophysical Plasmas.

Serbian Conference on Spectral Line Shapes in Astrophysics.

Konferencija: Razvoj astronomije kod Srba (održava se jednom u dve godine).

SEEDI International Conference: Digitization of cultural and scientific heritage (održava se jednom u tri godine).

NCD konferencija Tehnologije i standardi: digitalizacija nacionalne baštine (održava se svake godine). Profesorka Pejović učestvovala je u radu svakog od ovih skupova, od osnivanja 2003. godine.

Profesorka Pejović takođe je učestvovala na velikim međunarodnim skupovima:

International Symposium Geodesy and Physics of the Earth. Potsdam, 1988.

IAU (International Astronomical Union) General Assembly, Buenos Aires, 1991.

Earth Rotation, Reference System in Geodynamics and Solar System, Varšava, 1995.

Tri konferencije *IAU Colloquium*, Beograd 1987 i 2004, Cambridge 2005.

Tri konferencije koje su održane pod pokroviteljstvom *AIP* (American Institute of Physics), Bukurešt 2006, Sinaia 2007, Sremski Karlovci 2007.

Dve konferencije održane pod pokroviteljstvom *Astronomical Society of Pacific*, Side/Antalia 2006. i Sinaia 2006.

Profesorka Pejović takođe je učestvovala na jubilarnim skupovima, gde je učešće bilo po pozivu:

Conference Fifty Years of Romanian Astrophysics, Bukurešt 2006.

International Conference 60 years of the Institute of Mathematics and Informatics, Bulgarian Academy of Sciences, 2007, Sofia.

Konferencija: Đorđe Stanojević- život i delo - povodom 150 godina od rođenja, 2008, Novi Sad.

Profesorka Pejović održala je nekoliko predavanja po pozivu: „*Project ASV*“ na međunarodnom skupu The 5th Bulgarian–Serbian Conf. on Astron. and Space science, May 9–12, 2006, Sofia/Bulgaria i takođe „*Teaching of Astroinformatics at the University of Belgrade*“ na VII Bulgarian-Serbian Astronomical Conference: Astroinformatics, 1-4 June 2010, Chepelare-Rozen, Bulgaria.

Profesorka Pejović je često bila direktno angažovana u organizovanju naučnih skupova. Na primer, bila je član Naučnog i organizacionog komiteta (NOK) XI (1996) i XIII (2002) Nacionalne konferencije jugoslovenskih astronomata sa međunarodnim učešćem, u organizaciji Katedre za astronomiju Matematičkog fakulteta u Beogradu, a pod pokroviteljstvom Saveznog sekretarijata za nauku Jugoslavije i Ministarstva za nauku, tehnologiju i razvoj Republike Srbije. Bila je član NOK-a

XIV (2005) Nacionalne konferencije u organizaciji Astronomske opservatorije u Beogradu. Bila je kopredsednik zajedno sa kolegom Slobodanom Jankov XVI Nacionalne konferencije astronoma Srbije 2011. Takođe je učestvovala u organizaciji i programskim komitetima međunarodnih i domaćih konferencija: Srpsko-Bugarske konferencije astronoma, NCD i SEEDI konferencija sa temom digitalizacija naučne i kulturne baštine i konferencije Razvoj astronomije kod Srbija.

Udžbenici i prevodi.

Profesorka Pejović, sama ili u koautorstvu, napisala je i prevela nekoliko udžbenika.

1. N. Pejović, *Opšta astronomija*, 1996, recenziran rukopis.
2. Prevod univerzitetskog udžbenika *Astronomija – klasika u novom rahu*, Vesta Company, Beograd, 1998. (original: Spherical Astronomy, Robin Green, Cambr. Univ. Press, 1985, IX+520pp). Prevodioci: S. Šegan, N. Pejović i Z. Ćatović.
3. N. Pejović, S. Šegan, univerzitetski udžbenik *Osnovi astronomije*, Matematički fakultet, 2006, elektronsko izdanje.

Citiranost

Radovi Dr Nadežde Pejović citirani su u domaćim i inostranim naučnim časopisima. U vodećim naučnim časopisima i međunarodnim monografijama ima najmanje 50 citata, iz svake od četiri oblasti u kojima je radila. Prema Scholar Google ima preko 300 citata. Izdvajamo desetak važnijih citata.

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 - B. Fong Chao , A. Y. Au, *Atmospheric excitation of the Earth's annual wobble: 1980–1988*, Jour. Geophys. Res. **96**(1991).
 - R. Hide, *Fluctuations in the Earth's rotation and the topography of the core-mantle interface*, Phil. Trans. Royal. Soc. **328**(1989).
3. *Polar motion: observations and atmospheric excitation*, Veroff. Zentralinst. Phys., Erde, 1988. Citati:
 - S. Šegan, I. Damjanov and B. Surlan, *Earth's rotation irregularities derived from uti_{bli} by method of multi-composing of ordinates*, Serb. Astron. Jour. **167**(2003).
 - H. P. Plag, *Chandler wobble and pole tide in relation to interannual atmosphere-ocean dynamics*, Tidal Phenomena, Springer 2005
4. *On asymptotic solutions of Friedmann equations*, Appl. Math. Computation, **219**(2012). Citat:
 - S. Hossain, M. M. Moheuddin, M. S. A. Titu, *A New Mathematical Approach based on the Friedmann Equation*, IOSR Jour. Appl. Phys. **12**(2020).
5. *Astronomical heritage in NCD Virtual Library*, NCD Review **19**(2011). Citat:
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7. *Scientific papers of Milutin Milanković in his digital legacy*, NCD Review **25**(2015). Citat:
 - Z. Ognjanović, B. Marinković, M. Šegan-Radonjić, *Cultural Heritage Digitization in Serbia: Standards, Policies, and Case Studies*, Sustainability **11**(2019)

Učešće na projektima

Tokom svoje akademske karijere profesorka Pejović učestvovala je u više domaćih i međunarodnih projekata. Projekti su bili iz astronomskih nauka, a nekim od njih je rukovodila. Rukovodila je od 1986. do 1990. projektom Kretanje Zemljinih veštačkih satelita i geodinamika - poređenje teorije i posmatranja u okviru saradnje Čehoslovačke i Jugoslovenske akademije nauka i umetnosti. Tada je sa kolegom Stevom Šeganom objavila nekoliko zajedničkih radova. U periodu 2006-2009 rukovodila je projektom Program promocije i podsticanja nauke Ministarstva za nauku. Takođe, rukovodila je od 2014 – 2017. potprojektom Projekta III44006 na MF, Digitalizacija naučne i kulturne baštine. Učestvovala je u 10 naučnih i stručnih projekata, 7 domaćih i 3 međunarodna.

1. Projekat iz oblasti Astro-geo nauka Ministarstva za nauku Srbije, 1986-1990.
2. *Dinamika Zemljinih veštačkih satelita i geodinamika – poređenje teorije i posmatranja*, saradnja SANU i Češke akademije nauka, 1986-1990. Rukovodilac projekta: N. Pejović.
3. *Fizika i kretanje nebeskih tela i veštačkih satelita*, proj. 23, podprojekt *Geodinamika i veštački sateliti*, 1990-1995. Projekat je finansiralo Ministarstvo Srbije za nauku i tehnologiju, Rukovodilac: Milan Dimitrijević.
4. *Astrometrijska, astrodinamička i astrofizička istraživanja*, 1996-2000, finansiran od strane Ministarstva Srbije za nauku i tehnologiju. Rukovodilac: M. Dimitrijević.
5. *WG ERHFR – IAU Working Group on Earth Rotation in the Hipparcos Reference Frame* (founded by Baltimor 1998, XX IAU General Assembly). Rukovodilac: Jan Vondrak.
6. *Digitalizacija naučne i kulturne baštine*, proj. 6201, period 2005-2007, finansiran od strane Ministarstva za nauku i tehnologiju. Rukovodilac: Žarko Mijajlović.
7. *Program podsticanja, promocije i popularizacije nauke*, 2006-2009, finansiran je od strane Ministarstva za nauku i tehnologiju Republike Srbije. Ovim projektom je promovisana astronomija u skolama, posebno u Prokuplju, gde je bila u toku izgradnja nove opservatorije. Rukovodilac: Nada Pejović.
8. *Data bases of digital images, compression and fast search*. Realizacija: Serb. Acad. Sci. and Art i Bulg. Acad. Sci, 2007-2009, 2010-2013. Rukovodioci: Žarko Mijajlović i Ognyan Kounchev.
9. *Primena informacionih tehnologija u digitalizaciji naučne i kulturne baštine*, projekt br. 13017, 2007-2010, finansiran od strane Ministarstva za nauku i tehnologiju Republike Srbije. Rukovodilac: Žarko Mijajlović.
10. *Digitalizacija naučne i kulturne baština*, III44006, period 2011-2020, aneksima je produžavan od 2014. do 2022. i sve vreme bio je finansiran od strane Ministarstva za nauku Republike Srbije. Rukovodilac projekta u celom periodu je Zoran Ognjanović, direktor Matematičkog instituta SANU, dok je rukovodilac potprojekta na Matematičkom fakultetu bio Žarko Mijajlović. Po njegovom odlasku u penziju 2014, profesorka Pejović je preuzeila rukovodenje potprojektom. Po njenom odlasku u penziju 2017, rukovodilac postaje Nenad Mitić, profesor Matematičkog fakulteta.

Administrativne i upravne aktivnosti. Članstva

Skoro neprekidno tokom radnog veka, a i po odlasku u penziju, profesorka Pejović je imala važne funkcije u radu matičnog fakulteta i stručnih udruženja. Tako, bila je sekretar Instituta za astronomiju PMF, član Saveta MF, član Upravnog odbora MF i šef Katedre za astronomiju (1999-2007, 2012-2016) MF. Zatim, bila je član Univerzitetskog veća za matematiku i fiziku, Naučnog veća Astronomске opservatorije u Beogradu i član Komisije MF za izgradnju Astronomске stanice na Vidojevici kod Prokuplja. Član je Astronomskog društva „Ruđer Bošković“, zatim Udruženja „Milutin Milanković“ i takođe Astronomskog društva „Magelanov oblak“ iz Prokuplja. Član je Društva astronoma Srbije (DAS) i Nacionalnog komiteta astronoma Srbije. Član je Evropskog astronomskog društva i takođe Međunarodne astronomske unije (IAU). Bila je predsednik Nacionalnog astronomskog olimpijskog komiteta i potpredsednik Društva astronoma Srbije.

Novinski članci

Profesorka Pejović napisala je nekoliko novinskih članaka posvećenih astronomiji: *U spomen Gagarinu*, dnevne novine Blic, 12. april 2003, str. 24; Intervju *Bronzani astronomi* povodom učešća naše ekipe na međunarodnoj astronomskoj Olimpijadi u Pekingu, dnevne novine Politika, 9. novembar 2005; *Beograđani u Manavgatu u Turskoj - fotografije potpunog pomračenja Sunca*, dnevne novine Politika 31. mart 2006, str 26; *Zahtev da astronomija ponovo bude poseban predmet* dnevne novine Politika 23. maj 2013, str. 8; *Zašto naši najugledniji naučnici tvrde da HAARP ne može da deluje na vremenske prilike*, dnevne novine Politika 25. maj 2014, str.10; *Prof. Jovan Lazović dnevne novine Politika*, 18. jul 2020, str. 9. Takođe, napisala je desetak stručnih članaka i osvrta za naučno-popularni časopis *Vasiona*.

Učešće u TV emisijama

RTS Program za dijasporu, Magazin Srbija na vezi, *Digitalni legati Matematičkog fakulteta*.
16. septembar 2020, <https://www.youtube.com/watch?v=1x9MD23uKnE>

Studio B Jutro sa Sanjom, *Astronom Jovan Lazović - ko je bio i na čemu je radio?*
5. jun 2020, <https://www.youtube.com/watch?v=K-SdrmmI8Mc>

Takođe je učestvovala u nekoliko emisija na lokalnoj TV stanici u Prokuplju povodom izgradnje Astronomske stanice na planini Vidojevica kod Prokuplja.

RTS 1, Beogradska hronika, *XIII Beogradska gimnazija*, 10. Mart 2021.

RTS Program za dijasporu, Magazin Srbija na vezi, *Virtuelna biblioteka Matematičkog fakulteta*, 17. mart 2021.

RTS 1, Beogradska hronika, *Zlatni maturanti*, 26. maj 2021.