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Sv. 55

No. 55

MILAN S. DIMITRIJEVIĆ

БЕОГРАДСКА АСТРОНОМСКА ОПСЕРВАТОРИЈА У 1996  
BELGRADE ASTRONOMICAL OBSERVATORY IN 1996



БЕОГРАД  
1997

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## FOREWORD

The 1996 year was the first without sanctions against astronomy imposed in spite of all international covenants and agreements protecting the freedom of scientific communications, publication of scientific results without any discrimination and the dignity of science and scientific activities.

During 1996, 129 bibliographic items have been published, with 13 among them in international scientific journals of highest rank, 4 in books of international publishers, 17 in national scientific journals, 65 in contributed papers of international and national conferences, and 9 in circulars. Six invited lectures have been held by fellows of Astronomical observatory on international conferences and four on national. Two catalogues, one in Astronomy and Astrophysics Supplement Series and one in Bulletin Astronomique de Belgrade, as well as 2 review articles in international journals and 6 reviews and monographic texts in national publications have been published, and also, one M.Sc thesis. Zoran Knežević has been reviewer for Icarus for two papers, and for one article for Celestial Mechanics and Planetary and Space Science, and Slobodan Ninković for one paper for Celestial Mechanics.

Numbers 153 and 154 of the regular Observatory's publication BULLETIN ASTRONOMIQUE DE BELGRADE, as well as Nos. 51, 52, 53 and 54 of the PUBLICATIONS OF THE ASTRONOMICAL OBSERVATORY OF BELGRADE have been issued. These publications are regularly sent to 123 institutions and libraries in 43 countries and to 13 institutions and libraries within Yugoslavia.

Observatory's fellows have participated in works of 13 International conferences abroad (16 journeys by 8 fellows) and six conferences in Yugoslavia (49 journeys by 22 fellows).

Organized by the Observatory was:

1. II Yugoslav - Romanian round table on cooperation in astronomy, Belgrade, 8.10 1996

With the participation of Observatory were organized:

2. I Belorussian - Yugoslavian Symposium on Physics and Diagnostics of Laboratory and Astrophysical Plasma, Minsk, Belarus, 1-3.07 1996
3. XVIII Int. Symposium on the Physics of Ionized Gases (SPIG '96), Kotor, 2-6.09 1996

#### 4. XI National Conference of Yugoslav Astronomers, Belgrade, 9-11.10 1996

Jointly with our colleagues from Study group for interdisciplinary archaeology of the Serbian Archaeological Society, an initiative group for the foundation of an archaeoastronomy team was formed 12 June 1996 (Milan S. Dimitrijević - president, Istvan Vince, Živko Mikić, Borislav Jovanović, Milorad Stojić, Andor Vince).

Besides the agreements on collaboration signed with observatories in Bucharest, Cluj and Timisoara (12 May 1995), observatory in Kazan, Department of Astronomy and Department of Optics and Spectroscopy of the Kazan State University (18 August 1995), Institute of Molecular and Atomic Physics (Minsk) of the Belarussian Academy of Sciences and Institute of Applied Physical Problems (Minsk), of the State University (15 September 1995), Crimean Astrophysical observatory (24 November 1995), observatory in Odessa (27 November 1995) and observatory of the Belarussian State University in Minsk (27 December 1995), new agreements on collaboration have been signed in the course of 1996 with Pulkovo Astronomical observatory - Kislovodsk Solar station and Institute of Applied physics of the Russian Academy of sciences, Nizhnij Novgorod. Apart from this, our Observatory's fellows have continued collaboration with their colleagues in Belgium, Brazil, Finland, France, Hungary, Italy, Japan, New Zealand, North Ireland and Spain. New individual collaborations between our Observatory's fellows and their colleagues in Germany, Greece, Holland, Slovakia and Turkey have been maintained in the course of 1996.

Besides numerous newspaper articles and radio and TV emissions Observatory's fellows authored, they gave 35 lectures on astronomical subjects outside as well as inside our institution, contributing to the cultural life in our country.

## 1. SOME OF THE MAIN RESULTS OF THE OBSERVATORY'S RESEARCH ACTIVITY

If one takes into account that the best contributions to the science, are those published in international journals, a review of results of Belgrade Astronomical Observatory's fellows having appeared in these publications will be presented, as well as catalogues which are commonly the results of an effort of many years, and represent a particular interest to the astronomy.

The interest for a very extensive list of line broadening data is particularly stimulated by the development of space astronomy where an extensive amount of spectroscopic information over large spectral regions of all kind of celestial objects has been and will be collected, stimulating the spectral-line-shape research.

It is difficult to state in general terms which are the relevant transitions since the atmospheric composition of a star is not known a priori, and many interesting groups of stars exist with very peculiar abundances as compared to the Sun. Consequently, stellar spectroscopy depends on very extensive list of elements and line transitions with their atomic and line broadening parameters.

In order to provide the corresponding atomic data for stellar envelope opacities calculations, an international "Opacity Project" providing essentially data on energy levels and oscillator strengths for a large number of atoms and ions, and a number of photoionisation cross sections and Stark broadening data as well, has been formed in 1984. After the end of this project the subsequent "Iron Project" will provide data on electron impact excitation cross sections for atoms and ions along isoelectronic sequences. In order to complete as much as possible such data needed for astrophysical and laboratory plasma research and stellar opacity calculations, Dimitrijević and Sahal-Bréchet are making a continuous effort to provide Stark broadening data for a large set of atoms and ions. In Dimitrijević (1996), a programme to provide as much as possible complete set of Stark broadening data needed for stellar and laboratory plasma research has been exposed and results obtained up to now as well as the future plans have been discussed.

Stark broadening of S III and S IV lines has been considered several times experimentally and theoretically due to the increasing significance of the multiply-charged ion lines for research and modelling of hot, dense astrophysical and laboratory plasmas. Dimitrijević, Djeniže, Srećković and Platiša (1996) have investigated experimentally and theoretically Stark broadening data for lines from S III 4p-5s transition, not experimentally investigated up to now. The experimental results are compared with the theoretical results calculated by using the modified semiempirical approach, the approximate semiclassical approach and its modification. Since for

S IV, the new atomic energy level data enabling the full semiclassical perturbation calculation become available, the S IV lines have been considered as well.

Temperature dependence of the Stark widths (N III and F V) and shifts (N III and O IV) of the  $3s^2S - 3p(1S)^2P^o$  and  $3p^2P^o - 3p(1S)^2D$  transitions have been studied theoretically using the impact semiclassical method and experimentally observed in the plasma of a low pressure pulsed arc by Blagojević, Popović, Konjević and Dimitrijević (1996). Plasma electron densities were determined from the width of the He II  $P_\alpha$  line while electron temperatures were measured from the relative line intensities.

To estimate the influence of different ions on the width and shift of the considered lines, evaluations of the plasma composition data were performed and, in conjunction with the theoretical results of Blagojević, Popović, Konjević and Dimitrijević (1996), the contribution of ion broadening was estimated. Within the estimated uncertainties experimental Stark widths agree well with the results of the obtained semiclassical electron impact widths in the studied electron temperature range. For the conditions of the present experiment, estimated contribution of the ion broadening has never exceeded five percent of the total width. So, within the precision of this experiment it was not possible to detect its presence with certainty.

Along the boron isoelectronic sequence the experimental widths and shifts agree with semiclassical electron impact data predictions. In the case of O IV lines the inclusion of the energy levels with different parent terms in the semiclassical calculations of the Stark widths and shifts improved the agreement between theory and experiment considerably. Comparison of the experimental widths with simple theoretical formulas for estimation of plasma broadened linewidths show an agreement within the estimated uncertainties.

Line profiles study of carbon ions in different ionization stages is of importance for astrophysics due to the high cosmic abundance of carbon and due to the presence of spectral lines from its various ionization stages. Stark broadening parameters for C V lines are needed especially for hot and dense stars. A good example are PG 1159 pre-white dwarfs with effective temperature 100,000 – 140,000 K where carbon and helium are the dominant constituents ( $C/He = 0.5$ ). Stark broadening of C V lines is also of interest for the diagnostic of laser-produced plasma and for the research of regularities and systematic trends. For such research of interest are P V lines as well. Recently e.g., estimates of the Stark widths for P V 4s-4p and 4p-4d transitions have been performed in a study on Stark broadening regularities within successive ionization stages of phosphorus, performed in 1990 by Srećković and co-workers.

Dimitrijević and Sahal-Bréchet (1996a), performed within the semiclassical-perturbation formalism an analysis of electron-, proton-, and ionized helium-impact line widths and shifts for 25 C V and 51 P V multiplets. Obtained results have been compared with other available theoretical data.

Lines of neutral magnesium are present in the Solar spectrum and the corresponding Stark broadening parameters are of interest for their analysis as well as for the diagnostic of Solar plasma. Especially the infrared lines of Mg I have been observed in the Solar spectrum at Kitt Peak and during the Atmos experiment on Spacelab. Due to the suitability of these lines for the solar atmosphere investigations and to the fact that with the increase of the principal quantum number the importance of Stark



broadening increases too, the corresponding Stark widths and shifts are of importance for the structure of the Solar atmosphere research and solar plasma diagnostic. Stark broadening data for Mg I lines are also of interest for laboratory plasma research and they have been investigated experimentally and theoretically in a number of papers. By using the semiclassical-perturbation formalism, Dimitrijević and Sahal-Bréchet (1996b) have calculated electron-, proton-, Mg II-, Si II-, Fe II-, and Ar II-impact line widths and shifts for 267 Mg I multiplets at an electron density of  $10^{11} \text{ cm}^{-3}$ , in order to provide the needed Stark broadening parameters of all important perturbers for investigation and modelling of Solar plasma. In order to check the applicability of Coulomb approximation method for the calculation of oscillator strengths, line width calculations with line strengths from TOP base (the complete package of the opacity project (OP) data with the database management system is usually referred to as TOP base), have been performed for particular cases as well. The conclusion is that for transitions between low levels small differences do exist. However, for lines that are of interest for solar infrared astrophysics, corresponding to transitions between high levels, the use of Bates and Damgaard oscillator strengths is sufficient for line widths.

Regemorter and Hoang Binh have discussed recently the important simplification of theory for solar Rydberg lines corresponding to the transitions between nearly degenerate states, where the differences of energy  $E(n\ell, n\ell + 1)$  are of the order of a few  $\text{cm}^{-1}$ . These energy differences are much larger than the width so that the considered lines are isolated. They are however considerably smaller than the energy distances to the other perturbing levels  $n'\ell'$  which may be neglected so that the Stark broadening problem corresponds to a simple three level close coupling system including  $n\ell, n\ell + 1$  atomic energy levels. This approximation has been tested in detail. The analysis shows that the inelastic collision contribution practically does not vary with the addition of new perturbing levels and that the variation of strong collision contribution is also of the order of several percents. The elastic collision contribution has however a nonnegligable dependence on the perturbing level number. Since for solar Rydberg lines the elastic contribution to the width is by an order of magnitude smaller in comparison with other considered contributions, one may conclude that the approximation of Regemorter and Hoang Binh is very good for Stark widths of the considered lines. Since the elastic collisions have an important role in the Stark shift determination, for Stark shifts such approximation may become questionable.

Stark-broadening parameters for singly charged lithium lines are of particular interest for Stark broadening theory investigations since the He-like Li II spectrum is suitable for theoretical research. They are of interest for the examination of regularities and systematic trends within He isoelectronic sequence as well. For the systematic study of such regularities within an isoelectronic sequence we need the corresponding data for as much as possible larger number of successive ions and Li II is the first He-like ion of the series. Moreover, Stark broadening parameters of ion lines are of interest for solar and stellar opacities calculations, investigations of subphotospheric layers, stellar plasma modelling and diagnostic, abundance determinations, etc.

Dimitrijević and Sahal-Bréchet (1996c), have determined and analyzed electron-, proton-, and ionized helium-impact line widths and shifts for 29 Li II mul-

tiplets. The obtained results have been compared with the semiclassical results of Jones, Benett and Griem.

The analysis shows that the agreement between present calculation and calculations of Jones, Benett and Griem is better at higher temperatures, when the inelastic contribution to the width dominates, than at lower ones, when differences in cut-off procedure and the symmetrization influence are more significant.

Generally, the disagreement of present calculations with the calculations of Jones, Benett and Griem is greater than for He I. When we have transitions involving highly excited levels, when a close perturbing energy level exist, the Debye screening (not explicitly taken into account by Jones et al., but the corresponding correction is indicated) reduces present widths and shifts. Namely, for transitions involving highly excited levels  $(n, \ell)$ , the closest perturbing levels are  $(n, \ell + 1)$  and  $(n, \ell - 1)$ . The difference of energy between  $(n, \ell)$  and  $(n, \ell + 1)$  or  $(n, \ell - 1)$ , which decreases when  $n$  increases becomes small. The dominant contribution to the widths and shifts come from the transitions  $[(n, \ell) - (n, \ell + 1)]$  and  $[(n, \ell) - (n, \ell - 1)]$ . Typical impact parameters increase for the width and for the shift as well. Therefore the effect of the Debye shielding can not be negligible and reduces the widths and shifts. Likewise, at high densities the Debye length decreases and the width and shift linear behaviour with the density is no longer valid.

Finally the systematic trends of Stark broadening parameters within the  $2s^3S - np^3P^o$  series have been investigated. The analysis shows a gradual change of Stark broadening parameters permitting the interpolation of new data or critical evaluation of mutual consistency of existing data.

By using the semiclassical-perturbation formalism Dimitrijević and Sahal-Bréchet (1996d), have analyzed electron-, proton-, and ionized argon-impact line widths and shifts for 31 multiplets of neutral selenium. The obtained results have been presented and discussed.

The Be III and B III lines are also present in stellar spectra. The Be III Stark broadening parameters are additionally interesting, since the surface content (abundance) of Be, involves problems correlated with nucleogenesis, mixing between the stellar atmosphere and interior, and stellar structure and evolution. Line profiles of Be and B in various ionization stages, are of interest for opacity calculations as well. Within the semiclassical-perturbation formalism Dimitrijević and Sahal-Bréchet (1996e), have considered electron-, proton-, and ionized helium-impact line widths and shifts for 12 multiplets of Be III and 27 multiplets of B III. The obtained results have been presented and compared with available experimental and theoretical data.

Strontium lines are present in solar and stellar spectra. E.g. Komarov and Basak (1993) have found neutral strontium lines in the spectra of Sun and two Praesepe's stars. They are also of interest since Sr is one of thermonuclear s - processes product in stars and its overabundance is observed in CH and metal deficient barium stars. Neutral strontium lines are also of interest for the investigation of laboratory plasmas. E.g., Sr I lines have been considered theoretically by Davis (1972), for research of a laser - generated barium plasma. In order to continue the research of Stark broadening parameters needed for the investigation of astrophysical and laboratory plasmas and to provide the needed Stark broadening data, Dimitrijević and Sahal-Bréchet (1996f),

have considered within the semiclassical-perturbation formalism electron-, proton-, and ionized helium-impact line widths and shifts for 33 Sr I multiplets.

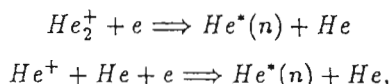
In order to provide astrophysicists with the relevant data needed for the theoretical modelling of stellar spectra and stellar atmospheres, as well as for abundance determination and opacity calculations, also for atom and ion lines for which the semiclassical perturbation formalism cannot be applied in the appropriate way due to the lack of reliable data for the needed atomic energy levels, Popović and Dimitrijević (1996a) applied to such cases the simpler, modified semiempirical approach. They analysed the Stark broadening of As II, Br II, Sb II and I II spectral lines. For these heavy ions a sufficiently complete set of reliable atomic data for more sophisticated semiclassical calculations does not exist. Although, in general, abundances of heavy elements are low, the lines are present mainly in the spectra of CP stars, as e.g. very strong absorption lines in spectra of Hg-Mn star HR7775. The obtained results have been compared with available experimental values and with simple estimates. The improvement of the accuracy of the presented data, by the corresponding scaling using the knowledge on regularities and systematic trends, has been discussed as well.

Spectral lines of Xe II are present in spectra of hot Hg-Mn stars, where Stark broadening is the main pressure broadening mechanism. On the basis of analysis of the Xe II spectral lines, one can conclude that the abundance of Xe in Hg - Mn stars is about two times higher than in the Sun. Stark broadening of Xe II lines is important for laboratory plasma as well and a number of experimental and theoretical papers concerning Stark widths and shifts of Xe II lines have been published. Popović and Dimitrijević (1996b) have analyzed the Stark broadening within 20 Xe II multiplets, by using the modified semiempirical approach. The obtained results have been compared with numerous experimental and theoretical data.

Spectral lines of Sc II, Y II and Zr II are present in spectra of  $\phi$  Her and  $o$  And, as well as in other hot stars. Lines of these ions are also observed in the Solar spectrum. Within the modified semiempirical approach, Popović and Dimitrijević (1996c) have analyzed Stark widths for 18 transitions of Sc II, Y II and Zr II, which are needed for stellar atmospheres investigations. The obtained results have been compared with simple estimates based on regularities and systematic trends. Conditions in hot stars atmospheres where Stark broadening is comparable to Doppler broadening or even larger, have been discussed as well.

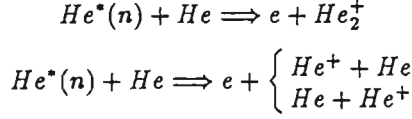
On the basis of the semi-classical theory, the influence of  $He + He^+ + e$  and  $He_2^+ + e$  recombination and  $He + He^*(n)$  ionization on the population of  $He^*(n)$  atoms in helium plasma was considered by Mihajlov, Djurić and Dimitrijević (1996) and the corresponding rate coefficient were determined.

The principal result of the article is the demonstration of the fact that, previously neglected recombination processes



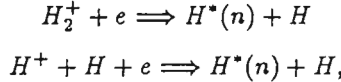
in low temperature plasma, are important and in particular cases even dominant factor influencing the population of highly excited  $He^*(n)$  atomic states. This fact is

stated by the comparison of these processes with the well known electron - electron - ion recombination processes. Similar but less significant fact is stated for the chemi- ionization processes



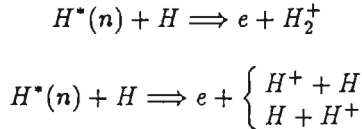
The results are obtained for nonequilibrium *He* plasmas with atomic temperature  $T_a$  and electronic temperature  $T_e$ , within the ranges  $2000K \leq T_a \leq 10000K$  and  $2000K \leq T_e \leq 40000K$ , with the principal quantum number  $4 \leq n \leq 10$ , for ionization degrees less than, or of the order of  $10^{-3}$ . This results may be of interest for the laboratory as well as for astrophysical plasmas. The calculations are performed by using the semi-classical method, improved in comparison with previous articles. For the considered recombination processes, the rate coefficients for  $T_e = T_a$  were presented as well. Such plasmas are e.g. plasmas in atmospheres of helium rich white dwarfs.

Mihajlov, Dimitrijević and Djurić (1996) have analyzed the recombination processes



and have demonstrated that they may have an important or even a dominant role in comparison with other relevant recombination processes in relatively low-ionized hydrogen plasmas. Here  $H_2^+$  is the molecular hydrogen ion in ground electronic state, while  $H = H(1s)$ , and  $H^+$  and  $H^*(n)$  are hydrogen ion and atom in a highly excited (Rydberg) state with the principle quantum number  $n$ .

The determination of the rate coefficients for the ionization processes:



which occur always in parallel with the above mentioned recombination processes for the considered plasma conditions, has been performed as well. It has been shown that they must be taken into account for the Rydberg atomic states population calculations in partially ionized plasmas.

The calculations were carried out within the semi-classical theory, in the case of a non-equilibrium hydrogen plasma with atomic temperature  $T_a$  and electronic temperature  $T_e$ , in the domains  $2000K \leq T_a \leq 10000K$  and  $2000K \leq T_e \leq 30000K$ , with the principal quantum number  $4 \leq n \leq 10$ . In the considered paper, Mihajlov, Dimitrijević and Djurić (1996) have also determined the conditions under which the analyzed processes are important for the kinetics of weakly ionized hydrogen plasma, as e.g. the solar atmosphere plasma.

The properties of stellar atmospheres as well as of their spectra result from the complex interactions between photons and gas particles during the radiative transfer throughout these outer layers of stars. Within this framework radiation transport plays a twofold role. On one hand, radiation field determines the structural and dynamical properties of the medium it propagates through, and on the other, it represents an important tool in the diagnostics of the plasma properties from its spectra.

Among other physical phenomena radiative transfer is, in general, the most complicated to deal with due to its non-local, non-linear and multi-mode nature.

Within the framework of the so-called structural approach – a new strategy for studying the stellar atmospheres – Atanacković-Vukmanović and Simonneau (1996) have reviewed the basic properties of the Iteration Factors Method on an instance of the linear two-level-atom line formation problem.

The method efficiently solves the radiative transfer problem within a simple iterative scheme. The improvement of the ordinary iteration procedure is achieved by the proper quasi-invariant functions – iteration factors – coupling (input/output) parameters in a block-diagram representation of a problem under study. By replacing the system of integro-differential radiative transfer equations by only one second-order differential equation with the iteration factors as its mean coefficients, the Iteration Factors Method avoids any matrix formulation. The rate of convergence to the exact solution is extremely high even under extreme NLTE conditions which are computationally the most difficult to deal with.

In Arlot, ... Protić-Benišek et al. 1996 a catalogue of the observations is presented containing the light-curves obtained during the PHEMU91 campaign of observations of the mutual phenomena of the Galilean satellites. Once every six years, the Earth and the Sun cross the equatorial plane of Jupiter and since the Galilean satellites have their orbital planes very close to the jovian equator, the satellites occult and eclipse each other during about six months. The 1991 period was additionally favourable, since the event happened during the opposition of Jupiter and the Sun, and since the declination of Jupiter was positive, which was more favourable for the observatories in the northern hemisphere.

Since there is no atmosphere around the Galilean satellites, the photometric observations may be very accurate (within an accuracy from 200 km for the best photographic observations to 700km for the eclipses by Jupiter).

Results of such observations are very useful in preparations of missions of the space probes exploring the Jovian system. Moreover, the motion of Galilean satellites, affected by numerous perturbations, is one of the most complex in celestial mechanics, and all the theoretical problems related to this motion are far from being solved.

A campaign of observations has been coordinated among 56 sites including Belgrade Astronomical Observatory (V. Protić-Benišek). The complete set of observations is composed of 371 lightcurves of 111 events.

Sadžakov, Dačić and Cvetković (1996), published an observational catalogue containing the positions of 146 high-luminosity stars, as well as the optical counterparts of 78 radio stars. These stars are of special interest for the study of the motions in the Galaxy. If the meridian observations of these stars (Cepheids, O and B type stars etc.) were to be repeated, a possibility of enhancing the accuracy of their positions

and proper motions would be offered. Consequently, a more accurate calculation of the space velocities and a more detailed study of the kinematics of high-luminosity stars would be attained.

In view of a relatively small number of stars in the observational programme, they added the 78 radio stars from a list of the Bordeaux Observatory. Their optical positions are necessary for as tight as possible linking of the FK5 to the extragalactic reference frame. These radio stars have belonged to a more comprehensive star list observed with the Automatic Meridian Circle at Bordeaux and they have been also included in the HIPPARCOS project. The above mentioned stars have been observed with the Large Meridian Circle of the Belgrade Observatory in the period 1991-1993.

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## 2. EQUIPMENT AND FACILITIES

Of works executed during 1996 at Belgrade Observatory, along with the purchases realized, of particular importance is the following:

- Purchased a computer Pentium 166 MHz, two computers Pentium 133 MHz and a laser printer.
- Continuation of the reconstruction works on the "Big refractor" pavilion.
- Partial reparation of the roof on the main building.
- Continuation of the putting in order of the Library, in the course of which 617 books have been bound in stiff covers.

## 3. BUDGET

Incomes in dinars in the period I – XII 1996

1. Public incomes – from the Ministry of Science and Technology of Serbia .....	1 615 895.85 dinars
2. Incomes from the sale products inside Yugoslavia .....	2 545.00 dinars
3. Other special incomes (reimbursement of V. Kršljanin's salary)	26 186.64 dinars
TOTAL .....	1 644 627.49 dinars



I EXPENDITURES ON INVESTMENTS AND INVESTMENTS  
MAINTENANCE OF WORKING MEANS

Kind of work	Performer	Amount in dinars
1. Big Refractor adaptation	"TEHNIKUM" Zemun.....	70 050.00
2. Reparation of the roof on the main building	"TEHNIKUM" Zemun.....	4 200.00
3. Maintenance and reparation of the working means	"ALBION" Beograd .....	8 478.50
Total expenditure .....		82 728.50 dinars

II EXPENDITURES FOR THE EQUIPMENT PURCHASE IN 1996

Item	Furnisher	Amount in dinars
1. Computer "PENTIUM" 166 MHz	"BAR PROMET" Beograd .....	11 558.12
2. Computer "PENTIUM" 133 MHz	"OFSET PRINT" Beograd .....	6 926.45
3. Computer "PENTIUM" 133 MHz	"OFSET PRINT" Beograd .....	6 926.45
4. Laser printer	"OFSET PRINT" Beograd .....	2 927.90
Total expenditure .....		28 338.92

### III EXPENDITURES FOR BOOKS AND JOURNALS BINDING IN HARD COVERS IN 1996

Number of books bound in hard cover	Furnisher	Amount in dinars
1. 617 books	KKR "PAŠTRMAC" Beograd .....	22 814.00
	Total expenditure .....	22 814.00

### IV EXPENDITURES ON PRINTING PUBLICATIONS OF THE ASTRONOMICAL OBSERVATORY IN 1996

Publication	Printed by :	Amount in dinars
1. Bull. Astron. Belgrade No 153	"KOMEX" Peć ....	5 110.00
2. Publ. Obs. Astron. Belgrade No 51	"KOMEX" Peć ....	4 500.00
3. Publ. Obs. Astron. Belgrade No 52	"KOMEX" Peć ....	5 480.00
4. Publ. Obs. Astron. Belgrade No 53	"KOMEX" Peć ....	6 480.00
5. Bull. Astron. Belgrade No 154	"PORTAL CO" ...	9 990.00
	Total expenditure .....	31 560.00

### V EXPENCES ON MATERIAL, ENERGY, RESERVE PARTS AND SMALL STOCKS

Total expences ..... 123 729.46 dinars

### VI CURRENT SERVICES AND SERVICES WITH MATERIAL EXPENCES

Total expences ..... 153 220.32 dinars

VII SPECIAL EXPENDITURES (TAXES, MEALS FOR STAFF, TRAVEL FARES  
CONTRIBUTIONS CHARGING THE EMPLOYER,  
ANNUAL VACATION REIMBURSEMENT)

Total expenses ..... 455 970.60 dinars

VIII FINANCING EXPENCES

Total expenses ..... 920.52 dinars

IX GROSS SALARIES

Total expenses ..... 740 616.81 dinars

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GRAND TOTAL (I+II+III+IV+V+VI+VII+VIII+IX) 1 639 899.13 dinars

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31. Vince I., Kubičela A., Arsenijević J., Protić-Benišek V., Popović L. Č., 1996, *OBSERVATIONAL PROGRAM FOR THE TOTAL SOLAR ECLIPSE OF AUGUST 11, 1999*, Proc. XI Nat. Conf. Yug. Astron., eds. M. Vukićević-Karabin, Z. Knežević, Publ. Astron. Obs. Belgrade 54, 193.
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#### 4.12. THESES

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#### 4.13. CIRCULARS

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#### 4.14. CONTRIBUTIONS IN NEWSPAPERS, PROFESSIONAL AND POPULARIZING LITERATURE

1. Milan S. Dimitrijević  
Astrologija – istina ili mit  
(Astrology – a truth or a myth)  
Politika, 15.II.1996, 10.
2. Pozdravni govor dr Milana Dimitrijevića, saveznog ministra za nauku, tehnologiju i razvoj, (The speech of dr Milan Dimitrijević, Federal minister for science, technology and development), u Srpska nacionalna manjina u Rumuniji (in: Serbian minority in Romania), Urednik (Editor) Vladimir Petrović, Institut Srpskog naroda, Beograd, 1996, 12.

3. Milan S. Dimitrijević  
Pomračenje meseca u noći između 3. i 4. aprila 1996. godine  
(The Lunar eclipse in the night between 3rd and 4th April 1996)  
Vasiona, br. 1-2, 1996, 20.
4. Milan Dimitrijević  
Odbrana od košmara  
(The defense of a nightmare)  
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Prosveta 1996, 149 (Biografija, str. 257)
5. Izabrao (Selected by): Milan S. Dimitrijević  
Pesnici i komete  
Mala antologija  
Poets and comets  
Little anthology  
Vasiona, br. 3, 1996, 46.
6. Milan S. Dimitrijević, Miodrag Đaćić, Zorica Cvetković  
Komete Hejl-Bop i Tabur  
(Comets Hale - Bopp and Tabur)  
Vasiona, br. 3, 1996, 39.
7. Zoran Knežević  
Nebeski Jugosloveni  
(Celestial Yugoslavs)  
Politikin Zabavnik, No. 2325, 30.VIII.1996, 48.
8. Zoran Knežević  
Kad zvezde umru život se radja  
(When stars are dead life is born)  
Politikin Zabavnik, No. 2340, 13.XII.1996, 6.
9. Zoran Knežević  
Da li je nadjena nedostajuća masa?  
(Is the missing mass found?)  
Politikin Zabavnik, No. 2341, 20.XII.1996, 16.
10. Luka Č. Popović  
Prva Jugoslovenska konferencija o obliku spektralnih linija  
The first Yugoslav conference on spectral line shapes  
Vasiona, br. 1-2, 1996, 28.
11. L. Č. Popović  
"Pomračenja Sunca i Meseca" Rudjera Boškovića  
(*"Solar and Lunar eclipses"* of Rudjer Bošković)  
Zbornik radova, Republički seminar o nastavi fizike, Proceedings, Republic seminar  
on the teaching of Physics, Novi Sad, 1996, 65.

12. L. Č. Popović  
 Časopis "Vasiona"  
 "Vasiona" Journal  
 Zbornik radova, Republički seminar o nastavi fizike, Proceedings, Republic seminar  
 on the teaching of Physics, Novi Sad, 1996, 137.
13. V. Protić-Benišek  
 Izložba "Svet merenja" Muzeja nauke i tehnike u galeriji SANU  
 (The exhibition "The world of measurements" of the Museum of Science and Tech-  
 nique in the SANU (Serbian Academy of Sciences and Arts Gallery)  
 Vasiona, br. 1-2, 1996, 28.
14. V. Protić-Benišek  
 C/1996 B2 Hjakutake – Kometa decenije?  
 (C/1996 B2 Hyakutake – The comet of the decade?)  
 Vasiona, br. 3, 1996, 37.

#### 4.15. INTERVIEWS

1. Slobodanka Andrić  
 Stižu nove sjajne komete  
 (New bright comets are arriving)  
 Politika, 25.II.1996, 22.
2. Slobodanka Andrić  
 Znaci nebeske srdžbe  
 (Signs of celestial angryness)  
 Politika 10.III.1996, 17.
3. Stanko Stojiljković  
 Lov na "crne rupe"  
 Ko buši Vaseljenu  
 A hunt on black holes  
 Who drills the Univers  
 Politika, 22.VII.1996, 16.
4. Slobodanka Andrić  
 Bliski susret komete i planete  
 A close encounter of the comet and the planet  
 Politika, 24.III.1996.
5. M. Timotić  
 Zvezde na dlanu  
 Stars on the palm  
 Borba 12.06.1996, 10.

6. Maksim Todorov  
Sotrudnichayut uchenye  
(Scientists cooperate)  
Central'naya gazeta, Minsk  
19.VII.1996,
7. Saša Važić  
Šta astronomija misli o astrologiji  
Omnia in numero et mensura  
Moderna astrologija ne prati modernu nauku – smatra dr Milan Dimitrijević, predsjednik Astronomskog društva "Rudjer Bošković"  
(What astronomy think on astrology  
Omnia in numero et mensura  
Modern astrology does not follow modern science – says dr Milan Dimitrijević, president of the Astronomical society "Rudjer Bošković")

#### 4.16. TRANSLATIONS

1. Zoran Knežević (Translation and edition)  
Čitav svet jedno "sočivo"  
(The whole world a "lense")  
Politikin Zabavnik, No. 2317, 5.VII.1996, 16.
2. Zoran Knežević (Translation, edition and Note on author)  
Paolo Farinella  
Eros protiv Zemlje  
(Eros against Earth)  
Politikin Zabavnik, No. 2322, 9.VIII.1996, 5.

#### 4.17. ARTICLES IN NEWSPAPERS ON ASTRONOMICAL OBSERVATORY, ITS ACTIVITY AND ACTIVITY OF ITS FELLOWS

1. Nikola Božić  
Aktivnosti fizičara u ovoj školskoj godini  
(Activities of physicians during this school year)  
Fizika i tehnika, Valjevska gimnazija, Valjevo, Br. 25, 1995, 15.
2. Jelena Milogradov-Turin  
Naši astronomi u Rumuniji  
(Our astronomers in Romania)  
Vasiona, Br. 5, 1995, 81.

3. M.Sm.  
Treći milenijum stiže na vreme  
(The third milenium is arriving on time)  
Ekspres Politika, 27.01.1996,3.
4. Leonid Min'ko  
Brat k bratu – v gosti  
(Brother to brother – as a guest)  
Central'naya gazeta, Minsk, No 5, 2-8.II.1996.
5. Milutin Ristić  
Prekinite "rat" izmedju astronomije i astrologije  
(Stop the "war" between astronomy and astrology)  
Politika, 22.II.1996,10.
6. Dr Miroslav Ahtik  
Država i zvezdočatci  
(The state and astrologists)  
NIN, 23.II.1996, 5.
7. U Valjevskoj gimnaziji održana Tribina o kosmosu  
(In Valjevo secondary school the lecture about Univers has been held)  
Napred, Valjevo, 23.II.1996, 5.
8. 2nd Hellenic Astronomical Conference  
Communications From Dr M. Dimitrijevic, Belgrade  
Hipparchos, The Hellenic Astronomical society Newsletter, Vol. 1, Issue 1, February  
1996, 5.
9. Kad ulazimo u 21. vek  
(When starts the 21st century)  
Politikin Zabavnik, 1.III.1996, 57.
10. Slavica Živanović  
Astrologija i (ili) astronomija  
(Astrology and (or) astronomy)  
Telegraf, Podlistak Bulevar, 13.III.1996, 11.
11. Milan Jeličić  
Rudjer Bošković: Pomračenja Sunca i Meseca  
(Rudjer Bošković: Solar and Lunar eclipses)  
Vasiona, br. 1-2, 1996, 26.

12. Tatjana Milovanov  
Predavanje u domu inženjera i tehničara o astronomima amaterima  
(The lecture in the house of engineers and technicians on amateurs astronomers)  
Vasiona, br. 1-2, 1996, 30.
13. Tanja M. Tomašević  
Repatica neće pasti  
(The comet will not crush)  
Večernje Novosti, 24.III.1996, 11.
14. Biblioteka grada  
(nedeljni program)  
(The library of the town  
weekly programme)  
Politika, 31.III.1996.
15. Aleksandar Dačić  
Zvezdarske zvezde  
(Stars of Zvezdara)  
Beogradske novine, Beograd, 5.IV.1996, 4.  
Politika ekspres, Beograd, 5.IV.1996.
16. S.A.  
Obeležen dan Astronomske opservatorije  
Naučna ustanova svetskog ugleda  
(Celebrated the Day of the Astronomical observatory  
A world wide known scientific institution)  
Politika, 6.IV.1996, 17.
17. Astronomska opservatorija  
Nagrade za jubilej  
(Astronomical observatory  
Prizes for the jubilee)  
Večernje novosti, 7.IV.1996, 14.
18. Slobodanka Andrić  
Iznenadjenja sa komete Hjaketake  
Prvi put vidjeni X zraci  
(Surprises from the comet Hyaketake  
Firstly seen X - rays)  
Politika 12.04.1996, 19.

19. Danas na talasima Radio Novosti  
 Drugovanje sa zvezdama  
 (Today on waves of Radio News  
 Friendship with stars)  
 Večernje Novosti, 15.04.1996, 14.
  
20. Lj.Z.  
 Prolećni ciklus predavanja Somborci – Somboru  
 Od lasera do klimatskih poremećaja  
 (The spring ciclus of lectures: Citizens of Sombor to Sombor  
 From lasers to climatic disturbances)  
 Somborske novine, 19.IV.1996, 9.
  
21. A.D.  
 Dr Milan Dimitrijević, Direktor Astronomske opservatorije  
 Ugled smo zadržali!  
 (Dr Milan Dimitrijević, Director of the Astronomical Observatory  
 The honor is saved)  
 Beogradske novine, Beograd, 10.V.1996,4.  
 Politika ekspres, Beograd, 10.V.1996.
  
22. Aleksandr Čumakov  
 Kontakty plazmenschchykau Belarusi i Jugoslavii macneyuc'  
 (Contacts of Belarusian and Yugoslav plasma scientists develope)  
 Naviny Akademii navuk Belarusi  
 Minsk, 23.VIII,1996, 1.
  
23. D.Radović  
 Skup o vrednovanju naučnog rada  
 Etika u istraživanju  
 (Meeting on scientific work evaluation  
 Etics in research)  
 Politika, 4.X.1996, 25.
  
24. V.D.P.  
 Skup astronoma  
 (Meeting of astronomers)  
 Večernje novosti, 9.X.1996, 26
  
25. S.Djokić  
 Predavanje u kasarni u Bujanj-Potoku  
 Šetnja po Sunčevom sistemu  
 Lecture in barracks in Bujanj-Potok  
 Walking across the Solar system)  
 Vojska, br. 222, 7 novembra 1996, 45

26. Soopštenie  
Prošetka po Sončeviot sistem  
(Anouncement  
Walking across the Solar system)  
Večer, Skopje, 14 noemvri 1996, 5.
27. Tomislav Petrović  
Jubilej časopisa "Mladi fizičar"  
O nastanku časopisa i izdavanju u proteklih dvadeset godina  
(Jubilee of the "Young Physicist" magazine  
On the creation of the magazine and on the editing during the past 20 years)  
Mladi Fizičar, br. 60, 1996, 1.
28. Vladimir Benišek  
Snimanje komete Hejl-Bop CCD kamerom sa Astronomske opservatorije u Beogradu  
(Observations of the comet Hale-Bopp with a CCD camera of the Belgrade astronomical observatory)  
Vasiona, br. 3, 1996, 54.
29. Vladimir Benišek  
Kometa C/1996 Q1 (Tabur) snimljena CCD kamerom sa Beogradske opservatorije  
(Observations of the comet Tabur with a CCD camera of the Belgrade astronomical observatory)  
Vasiona, br. 3, 1996, 55.
30. Milan Jeličić  
Promocija knjige "Pomračenja Sunca i Meseca"  
(Promotion of the book "Solar and Lunar eclipses")  
Vasiona, br. 3, 1996, 62.
31. Milan Jeličić  
Obeležena 109. godišnjica Astronomske opservatorije  
(Celebrated 109. anniversary of Astronomical observatory)  
Vasiona, br. 3, 1996, 63.
32. Zoran Ivanović  
XIV Beogradski astronomski vikend – BAV '96  
(XIV Belgrade astronomical weekend – BAV '96)  
Vasiona, br. 3, 1996, 66.



4.18. UNPUBLISHED COMMUNICATIONS PRESENT IN  
CONFERENCE PROGRAMMES AS INVITED  
LECTURES OR ORAL PRESENTATIONS

1. M. Dačić  
PRILOG DISKUSIJI O VREDNOVANJU NAUČNOG RADA U ASTRONOMIJI  
(CONTRIBUTION TO THE DISCUSSION ON THE SCIENTIFIC WORK EVALUATION IN ASTRONOMY)  
Vrednovanje naučnog rada (The evaluation of scientific work), SANU (Serbian Academy of Sciences and Arts), Belgrade, 7-8.10. 1996
2. G. Damljanović  
PREDICTION OF POLAR MOTION  
Journées: " Systèmes de Référence Spatio - Temporels" 1996, Paris, France, 23-25.09. 1996
3. M. S. Dimitrijević  
STARK BROADENING DATA FOR STELLAR PLASMA RESEARCH  
Current Problems in Astrophysics, International Conference in the memory of I. S. Shklovsky, S. A. Kaplan, S. B. Pikel'ner, Moscow, Russia, 23-28.09. 1996
4. M. S. Dimitrijević  
PROBLEMI VREDNOVANJA NAUČNOG RADA U ASTRONOMIJI  
(PROBLEMS OF SCIENTIFIC WORK EVALUATION IN ASTRONOMY)  
Vrednovanje naučnog rada (The evaluation of scientific work), SANU (Serbian Academy of Sciences and Arts), Belgrade, 7-8.10. 1996
5. M. Djokić  
PRILOG DISKUSIJI O VREDNOVANJU NAUČNOG RADA U ASTRONOMIJI  
(CONTRIBUTION TO THE DISCUSSION ON THE SCIENTIFIC WORK EVALUATION IN ASTRONOMY)  
Vrednovanje naučnog rada (The evaluation of scientific work), SANU (Serbian Academy of Sciences and Arts), Belgrade, 7-8.10. 1996
6. G. Djurašević  
AN ANALYSIS OF THE LIGHT CURVES OF THE ACTIVE CLOSE BINARY  
SW La  
International Amateur - Professional Photoelectric Photometer Symposium, Baja, Hungary, 25-27.10. 1996
7. G. Djurašević  
AN ANALYSIS OF THE LIGHT CURVES OF THE VARIABLE STAR OO AQL  
International Amateur - Professional Photoelectric Photometer Symposium, Baja, Hungary, 25-27.10. 1996

8. D. Jevremović  
OPTICAL SPECTROSCOPY OF STELLAR FLARES  
IX European Astrophysical Doctoral Network (EADN) Predoctoral School: "Stellar Atmospheres", Bruxelles, Belgia, 10-19.09. 1996
9. S. Malakov, A. Jovanović, L. Č. Popović, A. Kubičela, I. Vince  
A SOFTWARE FOR PHOTOMETRIC ANALYSES OF CCD IMAGES  
International Amateur – Professional Photoelectric Photometer Symposium, Baja, Hungary, 25-27.10. 1996
10. A. A. Mihajlov, M. S. Dimitrijević, Lj. M. Ignjatović, M. M. Vasiljević  
CHEMI – RECOMBINATION AND CHEMI – IONIZATION PROCESSES IN ASTROPHYSICAL PLASMAS  
Current Problems in Astrophysics, International Conference in the memory of I. S. Shklovsky, S. A. Kaplan, S. B. Pikel'ner, Moscow, Russia, 23-28.09. 1996
11. L. Č. Popović, I. Vince  
OBSERVATION OF POLARIZATION OF CORONA AND FLASH SPECTRUM AT TOTAL SOLAR ECLIPSE OF AUGUST 11, 1999.  
International Amateur – Professional Photoelectric Photometer Symposium, Baja, Hungary, 25-27.10. 1996
12. A. Skopal, G. Djurašević, A. Jones, E. Rovithis-Livaniou, P. Rovithis  
PHOTOMETRIC EVIDENCE OF AN ACCRETION DISK IN THE SYMBIOTIC BINARY AR PAV  
Physical processes in symbiotic binaries and related systems, Koninki, Poland, 16-19 June 1996.
13. I. Vince, L. Č. Popović, A. Kubičela, J. Arsenijević  
POLARIMETRICAL OBSERVATIONS WITH CCD CAMERA AT BELGRADE OBSERVATORY  
International Amateur – Professional Photoelectric Photometer Symposium, Baja, Hungary, 25-27.10. 1996

## 5. LECTURES HELD BY THE OBSERVATORY'S FELLOWS

### 5.1. LECTURES HELD AT THE ASTRONOMICAL OBSERVATORY

1. 15.02.1996  
Lj. Skuljan  
EROS Catalogue – Eclipse binaries in Magelanic clouds
2. 22.05.1996  
M. Dačić  
Application of differential formulas for determinations in geodetic astronomy.
3. 29.05.1996  
Z. Knežević  
Young dynamical members of the Koronis family.
4. 5.06.1996  
S. Petković, V. Protić-Benišek, I. Pakvor  
Problems of time and frequency
5. 12.06.1996  
Z. Cvetković  
Determination of the terrestrial points coordinates with respect on different reference surfaces.
6. 23.10.1996  
M. S. Dimitrijević  
The scientific work evaluation in astronomy.
7. 6.11.1996  
M. S. Dimitrijević  
The Theory of relativity today and its influence among Serbs
8. 13.11.1996  
I. Vince  
The 1999 Solar eclipse. Planed observational programmes.

9. 20.11.1996  
G. Djurašević  
An analysis of the light curves of some close binaries systems
10. 27.11.1996  
E. A. Solov'ev (Faculty of Sciences, Skopje)  
Rydberg states of a diatomic molecule
11. 16.12.1996  
G. Maris (Astronomical observatory, Bucharest)  
Romanian projects for the total Solar eclipse of august 11, 1999.

## 5.2. LECTURES HELD BY THE OBSERVATORY'S FELLOWS OUTSIDE THE ASTRONOMICAL OBSERVATORY

1. 17.I.1996  
M. S. Dimitrijević  
Horizont 2000 and beyond.  
Republic seminar on the teaching of Physics, Novi Sad
2. 14.2.1996  
M. S. Dimitrijević  
The beginning and the final fate of the Univers.  
Secondary school in Valjevo.
3. 29.02.1996  
M. S. Dimitrijević  
Stonhenge – Astronomical Observatory of the Stone ages.  
Rotary club, Beograd.
4. 29.03.1996  
M. S. Dimitrijević
  1. Walking across the Solar system.
  2. The beginning and the final fate of the Univers.Secondary school in Loznica
5. 30.03.1996  
L. Č. Popović  
The journey across the Univers  
Astronomical society of the University, Banski dvor, Banja Luka, Republic of Srpska
6. 27.04.1996  
M. S. Dimitrijević  
The beginning and the final fate of the Univers.  
Pedagogical faculty, Preparandija building, Sombor.

7. 3.06.1996  
M. S. Dimitrijević  
The evening of Astrophysics.  
Secondary school "Nikola Tesla", Apatin
8. 4.06.1996  
M. S. Dimitrijević  
Scientists and genius Nikola Tesla.  
Secondary school "Nikola Tesla", Apatin
9. 8.06.1996  
V. Protić-Benišek  
Small bodies of Solar system  
Pedagogical faculty, Preparandija building, Sombor.
10. 14.06.1996  
M. S. Dimitrijević  
The beginning and the future of the Univers.  
The house of culture, Niš.
11. 11.07.1996  
M. S. Dimitrijević  
140 years from Nikola Tesla's birth.  
Rotary club, Beograd
12. 15.07.1996  
M. S. Dimitrijević  
1. Walking across the Solar system.  
2. The beginning and the final fate of the Univers.  
Secondary school in Bijeljina.
13. 7.08.1996  
D. Jevremović  
Hydrogen Stark effect in the atmospheres of cool stars  
Armagh observatory, North Ireland
14. 12.09.1996  
M. S. Dimitrijević  
What is the Theory of relativity.  
Rotary club, Beograd
15. 12.10.1996  
I. Vince  
From Sun to infinity  
Primary school "Jožef Atila", Bogojevo
16. 25.10.1996  
M. S. Dimitrijević  
Walking across the Solar system.  
Barracks "Bubanj potok"

17. 26.10.1996  
S. Ninković  
On the Local group of galaxies  
The seminar on astronomy, Petnica
18. 14.11.1996  
M. S. Dimitrijević  
1. Black holes – Life and death of stars.  
2. Walking across the Solar system.  
Filozofski fakultet, Niš
19. 14.11.1996  
Z. Knežević  
Stability vs. chaos in asteroid motion  
Faculty of Physics, Milano, Italy
20. 15.11.1996  
M. S. Dimitrijević  
Walking across the Solar system.  
Macedonian Astronomical Society, Worker's house, Skopje.
21. 19.11.1996  
V. Protić-Benišek  
Astronomical publications of Milutin Milanković  
Mathematical institute of Serbian Academy of Sciences and Arts
22. 20.11.1996  
Z. Knežević  
Stability vs. chaos in asteroid motion  
Astronomical Observatory, Torino, Italy
23. 7.12.1996  
L. Č. Popović  
Quasars – the most distant objects?  
Astronomical Society of the University, Banski dvor, Banja Luka, Republic of Srpska
24. 10.12.1996  
Z. Knežević  
Stability vs. chaos in asteroid motion  
Faculty of Physics, Pavia, Italy

## 6. TV AND RADIO EMISSIONS

1. Cele godine M. Dačić je davao obdanice u Jutarnjem programu na Prvom programu Radio Beograda.  
All year round, M. Dačić presented data on the duration of day and night, in the Morning programme of the Radio Beograd first programme.
2. U proseku jednom mesečno I. Vince učestvuje u radio emisiji "Chip" Novosadske televizije na madjarskom jeziku u redakciji Jožefa Vereša (József Vörös) sa temom "Novosti u astronomskim istraživanjima". "Chip" se emituje svake srede od 17h do 17h 30m na 90.5 MHz i 92.5 MHz.  
Once a month in average, I. Vince participated in radio emission "Chip", of the Novi Sad television on hungarian language edited by József Vörös. The title is "News in astronomical research". "Chip" is emitted every wednesday from 17h up to 17h 30m on 90.5 MHz and 92.5 MHz.
3. Ima li života u Vasioni?, TV Beograd I Program, 7.04.1996, 11h. Učesnici: M. Dimitrijević, M. Jugin, V. Ajdačić.  
Does exist Life in Univers?, TV Beograd I Programme, 7.04.1996, 11h. Participants: M. Dimitrijević, M. Jugin, V. Ajdačić.
4. Budućnost koja se dogodila. Razgovor sa dr M. S. Dimitrijevićem direktorom Astronomske opservatorije, Radio Novosti, 15.04.1996. 16h 30m – 17h 30m.  
The future which already happened. The conversation with dr M. S. Dimitrijević, director of the Astronomical observatory, Radio Novosti, 15.04.1996. 16h 30m – 17h 30m.
5. Novo o starim planetama, maj – jul, četiri od devet TV emisija (produkcija 1987) na Školskom programu; 30 maj – Mars, 6 jun - Venera, 13 jun – Sa Zemlje na Mesec, 20 jun – Jupiter. Autor scenarija i voditelj M.S. Dimitrijević  
New facts about old planets, May – June, four of nine TV emissions (1987 production) on School programme.; 30th May – The Mars, 6th June – The Venus, 13th June – From the Earth to the Moon, 20 June – The Jupiter. The author of scenario and emission host M.S. Dimitrijević.

## 7. PUBLISHING ACTIVITY

### 7.1. EDITIONS OF THE ASTRONOMICAL OBSERVATORY

1. BULLETIN ASTRONOMIQUE DE BELGRADE  
M. S. Dimitrijević – editor in chief  
L. Č. Popović – editor  
O. Atanacković-Vukmanović, secretary  
S. Sadžakov – member of the editorial board  
I. Vince – member of the editorial board
2. PUBLICATIONS OF THE ASTRONOMICAL OBSERVATORY OF BELGRADE  
M. S. Dimitrijević – editor in chief  
L. Č. Popović – editor  
O. Atanacković-Vukmanović, member of the editorial board  
Z. Knežević – member of the editorial board  
S. Ninković – member of the editorial board  
G. Popović – member of the editorial board starting with No. 54  
V. Protić-Benišek – member of the editorial board  
S. Sadžakov – member of the editorial board up to No. 53  
I. Vince – member of the editorial board
3. BILTEN REFERATA ZA IZBOR U ZVANJA, Astronomske opservatorije (BULLETIN OF REPORTS ON CANDIDATES FOR ACADEMIC RANKS)  
M. S. Dimitrijević – editor

### 7.2. EDITIONS WHEREIN FELLOWS OF ASTRONOMICAL OBSERVATORY ARE AT EDITORIAL BOARDS OR SCIENTIFIC COUNCILS

1. VASIONA (UNIVERS)  
M. S. Dimitrijević – editor in chief  
L. Č. Popović – member of the editorial board
2. MLADI FIZIČAR (YOUNG PHYSICIST)  
M. S. Dimitrijević – member of the publishing council



3. STUDIJE, ANALIZE, POLITIKE  
(STUDIES, ANALYSES, POLITICS)  
Savezno ministarstvo za razvoj, nauku i životnu sredinu  
(Federal Ministry for development, science and environment)  
M. S. Dimitrijević – member of the editorial board
4. EKONOMSKI PREGLED  
(ECONOMICAL SURWAY)  
Savezno ministarstvo za razvoj, nauku i životnu sredinu  
(Federal Ministry for development, science and environment)  
M. S. Dimitrijević – member of the editorial board
5. FLOGISTON časopis za istoriju nauke, Muzej nauke i tehnike (Journal for the history of science, Museum of science and technics), Beograd  
M. S. Dimitrijević – member of the scientific council
6. Biblioteka "DISSERTATIO" (Edition "DISSERTATIO") Zadužbina Andrejević  
(Andrejević foundation)  
M. S. Dimitrijević – president of the editorial board and member of the scientific council of the foundation

## 8. ORGANIZATION OF CONFERENCES

1. I Belorussian – Yugoslavian Symposium on Physics and Diagnostics of Laboratory and Astrophysical Plasma, Minsk, Belarus, 1-3.07. 1996

Scientific committee

M.S. Dimitrijević

2. XVIII Int. Symposium on the Physics of Ionized Gases (SPIG '96), Kotor, 2-6.09. 1996

Scientific organizing committee

M. S. Dimitrijević

I. Vince

3. Vrednovanje naučnog rada (The evaluation of scientific work), SANU (Serbian Academy of Sciences and Arts), Belgrade, 7-8.10. 1996

Organizing committee

M. S. Dimitrijević

4. II Yugoslav – Romanian round table on cooperation in astronomy, Belgrade, 8.10. 1996

Organizing committee

M.S. Dimitrijević, Co-chairman

5. XI National Conference of Yugoslav Astronomers, Belgrade, 9-11.10. 1996

Scientific organizing committee

Z. Knežević, Co-chairman

M.S. Dimitrijević

I. Vince

Local organizing committee

L.Č. Popović

## 9. MEMBERSHIP IN INTERNATIONAL AND NATIONAL SCIENTIFIC SOCIETIES AND BODIES

### 9.1. MEMBERSHIP IN INTERNATIONAL SCIENTIFIC SOCIETIES

#### 1. International Astronomical Union

- J. Arsenijević
- M.S. Dimitrijević (Commissions 14, 36)
- G. Djurašević
- Z. Knežević (Commissions 7, 15 (Member of the organizing committee), 20)
- A. Kubičela (Commission 12)
- S. Ninković (Commissions 28, 33, 38)
- I. Pakvor (Commission 8)
- G. Popović (Commission 26)
- V. Protić-Benišek (Commission 20)
- S. Sadžakov (Commission 8)
- I. Vince (Commission 12)

#### 2. European Astronomical Society

- J. Arsenijević
- O. Atanacković-Vukmanović
- Z. Cvetković
- M. Dačić
- M.S. Dimitrijević
- S. Ninković
- L.Č. Popović
- V. Protić-Benišek
- S. Sadžakov
- I. Vince

#### 3. European Physical Society

- M.S. Dimitrijević

4. Euro-Asian Astronomical Society  
M.S. Dimitrijević  
S. Ninković
5. Hungarian Astronomical Society  
I. Vince
6. American Astronomical Society  
I. Vince
7. Astronomische Gesellschaft  
S. Ninković  
S. Sadžakov
8. International Occultation Timing Association – European Section  
V. Protić-Benišek
9. Astronomical Society of the Pacific  
S. Ninković

## 9.2. MEMBERSHIP IN NATIONAL ASTRONOMICAL AND OTHER PROFESSIONAL SOCIETIES AND BODIES

1. Društvo astronoma Srbije (Society of astronomers of Serbia)  
S. Sadžakov, President  
M.S. Dimitrijević, member of the presidential board
2. Nacionalni komitet za astronomiju (National committee for astronomy)  
Z. Knežević, President, up to 11.10.1996  
M.S. Dimitrijević, up to 11.10.1996  
I. Vince, up to 11.10.1996  
I. Vince, President, from 11.10.1996  
G. Djurašević, from 11.10.1996  
Z. Knežević, from 11.10.1996

3. Astronomsko društvo "Rudjer Bošković" (Astronomical society "Rudjer Bošković")
  - M. S. Dimitrijević, President
  - Z. Knežević, member of the presidential board
  - L. Č. Popović, member of the presidential board
  - V. Protić-Benišek, member of the presidential board
  - I. Vince, member of the presidential board
  
4. Odbor za matematiku, mehaniku i astronomiju Ministarstva za nauku i tehnologiju Srbije (formiran za period 1996 – 2000) Board for mathematics, mechanics, and astronomy of the Ministry of Science and Technology of Serbia (for 1996-2000)
  - I. Vince – member
  
5. Stručno veće za mehaniku, astronomiju i astrofiziku (Professional Council for mechanics, astronomy and astrophysics)
  - I. Vince – member
  
6. Radna grupa za pripremu rešenja za ostvarivanje Jugoslovenskog primarnog etalona vremena i frekvencije i distribucije etalona frekvencije i vremena SR Jugoslavije (Working group for the preparation of the solution for the realization of Yugoslav time and frequency primary standard and the distribution of the Yugoslav time and frequency standard)
  - V. Protić-Benišek – member

## 10. VISITING DIGNITARIES OF THE ASTRONOMICAL OBSERVATORY

5.04.1996.

Prof. Dr Janko Radulović, Federal Minister for Development, Science and Environment

Radonja Minić, Vice Minister for Development, Science and Environment

23.07.1996

Radonja Minić, Federal Minister

26.08-5.09.1996.

Dr Nina Polosukhina, Crimean Astrophysical Observatory, Nauchny, Crimea, Ukraine

30.08-10.09.1996.

Dr Stepan B. Gopasyuk, Crimean Astrophysical Observatory, Nauchny, Crimea, Ukraine

31.08-7.09.1996

Prof. Dr Leonid Yakovlevich Min'ko, Institute of Molecular and Atomic Physics, Minsk, Belarus

31.08-7.09.1996

Dr Aleksandr Chumakov, Institute of Molecular and Atomic Physics, Minsk, Belarus

31.08-7.09.1996.

Dr Irina Filatova, Institute of Molecular and Atomic Physics, Minsk, Belarus

5-8.09.1996.

Prof. Dr Nicholas Spyrou, Aristoteles University of Thessaloniki, Thessaloniki, Greece

19-20.09.1996.

Dr Nina Polosukhina, Crimean Astrophysical Observatory, Nauchny, Crimea, Ukraine

7-11.10.1996.

Dr Magdalena Stavinschi, Astronomical Observatory, Bucharest, Romania

7-11.10.1996.

Dr Petre Popescu, Astronomical Observatory, Bucharest,  
Romania

7-9.10.1996.

Dr Lucian Burs, Astronomical Observatory, Timisoara,  
Romania

7-9.10.1996.

Laslo Farkas, Astronomical Observatory, Timisoara,  
Romania

7-9.10.1996.

Alexandru Horvat, Astronomical Observatory, Timisoara,  
Romania

8-12.10.1996.

Dr Lajos Balázs, Konkoly Observatory, Budapest, Hungary

27.11.1996.

Dr Evgenij A. Solov'ev, Faculty of Sciences, Skopje

12-17.12.1996.

Dr Georgeta Maris, Astronomical Observatory, Bucharest,  
Romania

## 11. THE ATTENDANCE IN SCIENTIFIC CONFERENCES

1. Republički seminar o nastavi fizike (Republic seminar on the teaching of Physics), Novi Sad 17-18.01. 1996  
M.S. Dimitrijević  
L. Č. Popović
2. Nauka i tehnika u Srbiji druge polovine 19. veka, 1854 – 1904. (Science and Technique in Serbia in the second half of the 19th century, 1854 – 1904), Kragujevac, 7-8.05. 1996  
M. Djokić  
V. Trajkovska  
V. Protić-Benišek
3. VIII European Conference on Solar Physics, Kalithea (Thessaloniki), Greece, 13-18.05. 1996  
M.S.Dimitrijević
4. Advanced School and Workshop "The Interaction of Stars with their Environment", Visegrád, Hungary, 23-25.05. 1996  
S. Nikolić
5. NATO Advanced Research Workshop "Theoretical and Observational Problems related to Solar Eclipses", Sinaia, Romania, 1-5.06. 1996  
I. Vince  
L. Č. Popović
6. I Belorussian – Yugoslavian Symposium on Physics and Diagnostics of Laboratory and Astrophysical Plasma, Minsk, Belarus, 1-3.07. 1996  
M.S. Dimitrijević  
L.Č. Popović
7. IAU Colloquium 165, Dynamics and Astrometry of Natural and Artificial Celestial Bodies, Poznań, Poland, 1-5.07. 1996  
G. Damljanović



8. COSPAR Colloquium 10, "Asteroids, Comets, Meteors 1996", Versailles, France, 8-12.07. 1996  
Z. Knežević
9. European Group for Atomic Spectroscopy, 28th Annual Conference, Graz, Austria, 16-19.07. 1996  
L. Č. Popović
10. IAU Symposium 180, "Planetary Nebulae", Groningen, Holland, 25-30.08. 1996  
M. S. Dimitrijević
11. XVIII Int. Symposium on the Physics of Ionized Gases (SPIG '96), Kotor, 2-6.09. 1996  
J. Arsenijević  
Z. Cvetković  
M. Dačić  
M. S. Dimitrijević  
G. Djurašević  
I. Vince
12. IX European Astrophysical Doctoral Network (EADN) Predoctoral School: "Stellar Atmospheres", Bruxelles, Belgia, 10-19.09. 1996  
D. Jevremović
13. Journées: "Systèmes de Référence Spatio – Temporels" 1996, Paris, France, 23-25.09. 1996  
G. Damljanović
14. Current Problems in Astrophysics, International Conference in the memory of I. S. Shklovsky, S. A. Kaplan, S. B. Pikel'ner, Moscow, Russia, 23-28.09. 1996  
M. S. Dimitrijević
15. Vrednovanje naučnog rada (The evaluation of scientific work), SANU (Serbian Academy of Sciences and Arts), Belgrade, 7-8.10. 1996  
M. Dacić  
M. S. Dimitrijević  
M. Djokić
16. IV International Workshop on Positional Astronomy and Celestial Mechanics, Peniscola, Spain, 7-11.10. 1996  
G. Damljanović

17. II Yugoslav – Romanian round table on cooperation in astronomy, Belgrade, 8.10. 1996

O. Atanacković-Vukmanović  
Z. Cvetković  
M. Dačić  
M.S. Dimitrijević  
G. Djurašević  
Z. Knežević  
D. Olević  
L.Č. Popović  
V. Protić-Benišek  
V. Trajkovska  
I. Vince

18. XI National Conference of Yugoslav Astronomers, Belgrade, 9-11.10. 1996

J. Arsenijević  
O. Atanacković-Vukmanović  
Dj. Božičković  
Z. Cvetković  
M. Dačić  
G. Damljanović  
M.S. Dimitrijević  
M. Djokić  
G. Djurašević  
B. Jovanović  
P. Jovanović  
Z. Knežević  
A. Kubičela  
S. Marković-Kršljanin  
S. Nikolić  
S. Ninković  
R. Pavlović  
L.Č. Popović  
G. Popović  
M. B. Protić  
V. Protić-Benišek  
V. Trajkovska  
I. Vince  
V. Živkov

19. International Amateur – Professional Photoelectric Photometer (I.A.P.P.) Symposium: "CCD Techniques in Stellar Photometry", Baja, Hungary, 25-27.10. 1996

G. Djurašević  
I. Vince

## 12. VISITS TO SCIENTIFIC INSTITUTIONS

1. 1.01-30.06.1996  
Armagh Observatory, Armagh, Northern Ireland  
D. Jevremović
2. 1.01-2.02. 1996  
Department of Physics and Astronomy, University of Canterbury,  
Christchurch, New Zealand.  
Lj. Skuljan
3. 9.01 - 15.03.1996  
Observatory, University of Helsinki, Finland  
S. Jankov
4. 1.03-31.12. 1996  
Department of Physics and Astronomy, University of Canterbury,  
Christchurch, New Zealand.  
Lj. Skuljan
5. 21.03-4.04. 1996  
Dipartimento di matematica, Pisa, Italy  
Z. Knežević
6. 8.04-18.12. 1996  
Instituto Astronomico e Geofisico – USP, Sao Paolo, Brasil  
S. Jankov
7. 15-22.04. 1996  
Crimean Astrophysical Observatory, Nauchny, Crimea, Ukraina  
L. Č. Popović
8. 15.05-9.06. 1996  
Astronomical Institute, Münster, Germany  
L. Č. Popović

9. 3-22.06. 1996  
ESTEC – ESA (Solar System Division), Noordwijk, Holland  
D. Jevremović
10. 29.06-7.07. 1996  
Institute of Molecular and Atomic Physics, Minsk, Belarus  
Institute for applied physical problems, of the Belorussian state university, Minsk, Belarus  
M.S.Dimitrijević  
L.Č. Popović
11. 1.07-31.08. 1996  
Institut d’Astrophysique, Paris, France  
O. Atanacković-Vukmanović
12. 8-12.07. 1996  
Astronomical Institute of the Academy of Sciences of the Czech Republic, Prague  
Czech Republic  
G. Damljanović
13. 8-15.07. 1996  
Konkoly Observatory – Pizskéstető, Matra, Hungary  
S. Nikolić
14. 2-6.09. 1996  
Catalonian Polytechnical University, Barcelona, Spain  
S. Ninković
15. 2.09-16.12. 1996  
Armagh Observatory, Armagh, Northern Ireland  
D. Jevremović
16. 20-30.09. 1996  
GAIŠ – Main Astronomical Institute ”Šternberg”, Moscow, Russia  
Astronomical Institute of the Russian Academy of Sciences, Moscow, Russia  
M. S. Dimitrijević
17. 12.11-9.12. 1996  
Osservatorio astronomico di Brera, Milano, Italy  
Osservatorio astronomico di Torino, Italy  
Dipartimento di matematica, Pisa, Italy  
Z. Knežević
18. 15-16.11. 1996  
Faculty of Sciences, Skopje  
M. S. Dimitrijević

### 13. INTERNATIONAL SCIENTIFIC COLLABORATION

Institute of Molecular and Atomic Physics, Minsk, Belarus (Agreement on collaboration signed 15. 09. 1995)

Scientific-Research Institute for Applied Physical Problems, of The Belarussian State University, Minsk, Belarus (Agreement on collaboration signed 15. 09. 1995)

Astronomical Observatory of The Belarussian State University, Minsk, Belarus (Agreement on collaboration signed 27. 12. 1995)

Observatoire Royale de Belgique, Uccles, Belgia (V. Protić-Benišek)

Instituto Astronomico e Geofisico – USP, Sao Paolo, Brasil (S. Jankov)

Observatory, University of Helsinki, Finland (S. Jankov)

Observatoire de Paris, Meudon, France (M. S. Dimitrijević)

Institut d'Astrophysique, Paris, France (O. Atanacković-Vukmanović)

Bureau des longitudes, Paris, France (V. Protić-Benišek, G. Damljanović, L. Č. Popović)

Astronomical Institute, Münster, Germany (L.Č. Popović)

Section of Astrophysics, Astronomy and Mechanics, Department of Physics, University of Athens, Athens, Greece (G. Djurašević)

ESTEC-ESA (Solar System Division), Noordwijk, Holland (D. Jevremović)

Department of Astronomy, Eötvös Lorand University, Hungary (S. Nikolić)

Konkoly Observatory, Hungary (I. Vince, S. Nikolić)

Dipartimento di matematica, Universita di Pisa, Pisa, Italy (Z. Knežević)

Osservatorio astronomico di Brera, Milano, Italy (Z.Knežević)

Osservatorio astronomico di Torino, Italy (Z.Knežević)

ILOC – International Lunar Occultations Center, Tokio, Japan (V. Protić-Benišek)

Department of Physics and Astronomy, University of Canterbury, Christchurch, New Zealand (Lj. Skuljan)

Carter Observatory, Wellington, New Zealand (G. Djurašević)

Armagh Observatory, Armagh, Northern Ireland (D. Jevremović)

Queen's University, Belfast, Northern Ireland (D. Jevremović)

Astronomical Observatory, Bucharest, Romania (Agreement on collaboration with Astronomical Institute of the Romanian Academy of Sciences, signed 12. 05. 1995)

Astronomical Observatory, Cluj – Napoca, Romania (Agreement on collaboration with Astronomical Institute of the Romanian Academy of Sciences, signed 12. 05. 1995)

Astronomical Observatory, Timisoara, Romania (Agreement on collaboration with Astronomical Institute of the Romanian Academy of Sciences, signed 12.05.1995)

GAIŠ – Main Astronomical Institute "Šternberg", Moscow, Russia (S. Ninković)

St. Petersburg State University, St. Petersburg, Russia (S. Ninković)

Institute of Theoretical Astronomy (ITA), St. Petersburg, Russia (V. Protić-Benišek)

Petrozavodsk State University, Petrozavodsk, Russia (S. Ninković)

Pulkovo Astronomical Observatory, Pulkovo, St. Petersburg, Russia (I. Pakvor, V. Protić-Benišek, S. Sadžakov)

Pulkovo Astronomical Observatory – Kislovodsk Solar Station, Pulkovo – Kislovodsk, St. Petersburg, Russia (Agreement on collaboration signed in beginning of 1996)

Institute of Applied Physics of the Russian Academy of Sciences, Nizhnij Novgorod, Russia, (Agreement on collaboration signed in beginning of 1996)

Department of Optics and Spectroscopy, Kazan State University, Kazan, Tatarstan, Russia (Agreement on collaboration, signed 18.08.1995)

Department of Astronomy, Kazan State University, Kazan, Tatarstan, Russia (Agreement on collaboration, signed 18.08.1995)

Engelkhart Astronomical Observatory, Kazan, Tatarstan, Russia (Agreement on collaboration, signed 18.08.1995)

Astronomical Institute of the Slovak Academy of Sciences, Tatranska Lomnica, Slovakia (G. Djurašević)

Catalonian Polytechnical University, Barcelona, Spain (S. Ninković)

Astrophysical Institute of Andalusia, Granada, Spain (S. Ninković)

Ankara University Observatory, Turkey (G. Djurašević)

Astronomical Observatory of Odessa State University "I.I. Mechnikov", Odessa, Ukraina (Agreement on collaboration, signed 27.11.1995)

Crimean Astrophysical Observatory, Nauchny, Crimea, Ukraina (Agreement on collaboration, signed 24.11.1995)

## 14. PEDAGOGICAL ACTIVITY

### 14.1. LECTURES AT THE UNIVERSITY AND ACADEMIES

1. O. Atanacković-Vukmanović  
THEORETICAL ASTROPHYSIC  
Department of Astronomy, Mathematical Faculty  
(lectures and exercises) IV year.
2. M.S. Dimitrijević  
ASTRONOMICAL SPECTROSCOPY  
Department of Astronomy, Mathematical Faculty  
Postgraduate studies II year
3. I. Vince  
PRACTICAL ASTROPHYSICS  
Department of Astronomy, Mathematical Faculty  
(lectures and exercises) III year.
4. I. Vince  
METHODS AND TECHNIQUE OF OBSERVATIONS OF THE SUN  
Department of Astronomy, Mathematical Faculty  
Postgraduate studies II year

15. ADDITIONS TO THE 1995 LIST OF INSTITUTIONS  
RECEIVING BULL. ASTRON. BELGRADE AND  
PUBL. OBS. ASTRON. BELGRADE

FINLAND

Tuorla Observatory, University of Turku, Piikkio, Finland

GERMANY

Sächsische Akademie der Wissenschaften, Leipzig, Germany

USA

Institute for Scientific Information, Philadelphia, Pennsylvania

UCLA Serials Department, University Research Library, Los Angeles, California, USA

YUGOSLAVIA

Katedra za primenjenu matematiku, Elektrotehnički fakultet, Beograd



## 16. BELGRADE ASTRONOMICAL OBSERVATORY STAFF AND ORGANISATION

### 16.1. WINNERS OF THE ASTRONOMICAL OBSERVATORY PRIZE FOR 1996

1. Prize for Science  
MILAN S. DIMITRIJEVIĆ
2. Prize for Science for youngs  
LJUBINKO IGNJATOVIĆ
3. Prize for the contribution to the development of the Astronomical Observatory (for fellows of Astronomical Observatory)  
ZORAN KNEŽEVIĆ
4. Prize for the contribution to the development of the Astronomical Observatory  
BRANISLAV ŠEVARLIĆ

#### DIRECTOR

Milan S. Dimitrijević

#### DIRECTORIAL BOARD

Zoran Knežević – President

Olga Atanacković-Vukmanović – Vice President

Stevan Djeniže

Gojko Djurašević

Svetislav Krstić

Svetozar Miljević

Slobodan Ninković

Slobodan Žegarac

16.2. JOINT SCIENTIFIC COUNCIL OF ASTRONOMICAL  
OBSERVATORY, GEOMAGNETIC INSTITUTE AND  
SEISMOLOGICAL INSTITUTION

Milan S. Dimitrijević – President  
Slobodan Ninković – Vice President  
Olga Atanacković-Vukmanović  
Ljiljana Cander  
Stevan Djeniže  
Aleksandar Djordjević  
Gojko Djurašević  
Davorka Grubor  
Slobodan Jankov  
Zoran Knežević  
Aleksandar Kubičela  
Anatolij A. Mihajlov  
Georgije Popović  
Sofija Sadžakov  
Božidar Stanić  
Desanka Šulić  
Ištvan Vince

16.3. SCIENTIFIC COUNCIL OF ASTRONOMICAL OBSERVATORY

Slobodan Ninković – President  
Gojko Djurašević – Vice President  
Olga Atanacković-Vukmanović up to 30.IX.1996.  
Milan S. Dimitrijević  
Slobodan Jankov  
Zoran Knežević  
Georgije Popović  
Luka Č. Popović  
Ištvan Vince

16.4. STAFF AND ORGANISATION OF  
ASTRONOMICAL OBSERVATORY IN 1996

Dr Milan S. Dimitrijević (Director)

SCIENTIFIC DIVISION

DEPARTMENT FOR ASTROPHYSICS

Dr Istvan Vince (Head of department)

Dr Olga Atanacković-Vukmanović up to 30.IX.1996

Dr Milan S. Dimitrijević

Dr Gojko Djurašević

Dr Slobodan Jankov

Dr Luka Č. Popović

M.Sc. Sanja Erkapić (M.Sc since 19.I.1996)

M.Sc. Darko Jevremović

M.Sc. Vladimir Kršljanin up to 24.V.1996

M.Sc. Silvana Nikolić since 1.II.1996

M.Sc. Ljiljana Skuljan

Snežana Marković-Kršljanin since 19.VI.1996

DEPARTMENT FOR DYNAMICAL ASTRONOMY

Dr Georgije Popović (Head of department)

Dr Zoran Knežević

Dr Slobodan Ninković

M.Sc. Dragomir Olević

M.Sc. Rade Pavlović

M.Sc. Vojislava Protić-Benišek

M.Sc. Danilo Zulević

Veselka Trajkovska

DEPARTMENT FOR ASTROMETRY

M.Sc. Ivan Pakvor (Head of Department)

M.Sc. Zorica Cvetković

M.Sc. Miodrag Dačić

COMPUTING CENTER

Vera Sekulović (Head of Computing Center)

LIBRARY

Dojna Petrović (Head of Library)  
Vesna Mijatović

PROFESSIONAL SERVICES SECTION

TIME KEEPING AND GEOGRAPHIC COORDINATES DETERMINATION SERVICE

Goran Damljanović (Head of The Service)  
Djuro Božičković  
Milorad Djokić retired since 23.XII.1996  
Leposava Djurović  
Bora Jovanović

GENERAL AND PERSONAL SERVICE

Sreten Stepanović (Secretary – Head of The Service)  
Gordana Gajić (Technical secretary)  
Snežana Marković-Kršljanin up to 12.IV.1996

SECURITY SERVICE

Radivoj Cicvara (security)  
Stajka Novaković (telephonist)

MAINTENANCE SERVICE

Jelena Pešić  
Momčilo Trandafilović

ACCOUNT – KEEPING SERVICE

Slavica Pavić (Head of Service)  
Gordana Dakić (bookkeeper – accountant)

TECHNICAL SERVICE

Čedomir Šaponja (Head of The Service)  
Vladimir Savković (electrotechnician)

## 17. E-MAIL ADDRESSES

M.Sc Jelisaveta Arsenijević	jarsenijevic@aob.aob.bg.ac.yu
Djuro Božičković	djbozickovic@aob.aob.bg.ac.yu
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M.Sc Miodrag Dačić	mdacic@aob.aob.bg.ac.yu
M.Sc Goran Damljanović	gdamljanovic@aob.aob.bg.ac.yu
Ph.D. Milan Dimitrijević	mdimitrijevic@aob.aob.bg.ac.yu
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Ph.D. Gojko Djurašević	gdjurasevic@aob.aob.bg.ac.yu
Leposava Djurović	ldjurovic@aob.aob.bg.ac.yu
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Predrag Jovanović	pjovanovic@aob.aob.bg.ac.yu
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M.Sc Silvana Nikolić	silvana@aob.aob.bg.ac.yu
Ph.D. Slobodan Ninković	sninkovic@aob.aob.bg.ac.yu
M.Sc Dragomir Olević	dolevic@aob.aob.bg.ac.yu
M.Sc Ivan Pakvor	ipakvor@aob.aob.bg.ac.yu
M.Sc Rade Pavlović	rpavlovic@aob.aob.bg.ac.yu
Ph.D. Georgije Popović	gpopovic@aob.aob.bg.ac.yu
Ph.D. Luka Popović	lpopovic@aob.aob.bg.ac.yu
M.Sc Vojislava Protić-Benišek	vprotic@aob.aob.bg.ac.yu
Ph.D. Sofija Sadžakov	ssadzakov@aob.aob.bg.ac.yu
Vera Sekulović	vera@aob.aob.bg.ac.yu
M.Sc Ljiljana Skuljan	ljskuljan@aob.aob.bg.ac.yu
Veselka Trajkovska	vtrajkovska@aob.aob.bg.ac.yu
Ph.D. Ištvan Vince	ivince@aob.aob.bg.ac.yu
M.Sc Danilo Zulević	dzulevic@aob.aob.bg.ac.yu
Vesna Živkov	vzivkov@aob.aob.bg.ac.yu

№ 1 (1947)

ЕФЕМЕРИДЕ 98 МАЛИХ ПЛАНЕТА ЗА 1947 ГОДИНУ  
ÉPHÉMÉRIDES DE 98 DES PETITES PLANÈTES POUR L'AN 1947

№ 2 (1947)

ЕФЕМЕРИДЕ 106 МАЛИХ ПЛАНЕТА ЗА 1948 ГОДИНУ  
ÉPHÉMÉRIDES DE 106 DES PETITES PLANÈTES POUR L'AN 1948

№ 3 (1949)

ЕФЕМЕРИДЕ 106 МАЛИХ ПЛАНЕТА ЗА 1949 ГОДИНУ  
ÉPHÉMÉRIDES DE 106 DES PETITES PLANÈTES POUR L'AN 1949

№ 4 (1951)

P. M. Djurković, B. M. Ševarlić et Z. M. Brkić  
ОДРЕЂИВАЊЕ ГЕОГРАФСКЕ ШИРИНЕ АСТРОНОМСКЕ ОПСЕРВАТОРИЈЕ  
У БЕОГРАДУ, 1947  
DETERMINATION DE LATITUDE DE L'OBSERVATOIRE ASTRONOMIQUE  
DE BELGRADE, 1947

№ 5 (1957)

B. M. Ševarlić  
SUR LE PROBLÈME DE LA VARIATION DES LATITUDES ET  
DU MOUVEMENT DU PÔLE INSTANTANÉ DE ROTATION  
À LA SURFACE DE LA TERRE

№ 6 (1961)

Ljubiša A. Mitić  
COOSCILLATIONS DES PENDULES ASTRONOMIQUES

№ 7 (1961)

Zaharije M. Brkić  
ПРИЛОГ ИСПИТИВАЊИМА СИСТЕМАТСКИХ УТИЦАЈА  
НА АСТРОНОМСКО ОДРЕЂИВАЊЕ ВРЕМЕНА  
CONTRIBUTION AUX ÉTUDES DES INFLUENCES SYSTÉMATIQUES  
À LA DÉTERMINATION ASTRONOMIQUE DE L'HEURE

№ 8 (1961)

B. M. Ševarlić  
ПРОМЕНЕ ГЕОГРАФСКЕ ШИРИНЕ АСТРОНОМСКЕ ОПСЕРВАТОРИЈЕ  
У БЕОГРАДУ ОД 1949.0 – 1957.0  
VARIATIONS DE LA LATITUDE DE L'OBSERVATOIRE ASTRONOMIQUE  
DE BEOGRAD DE 1949.0 – 1957.0

№ 9 (1961)

Branislav M. Ševarlić  
PRILOG ISPITIVANJU PROMENA GEOGRAFSKIH ŠIRINA BEOGRADA  
CONTRIBUTION A L'ÉTUDE DES VARIATIONS DE LA LATITUDE  
DE BEOGRAD

№ 10 (1964)

Vasilije Oskanjan

THE UV CETI VARIABLE STARS

№ 11 (1965)

P. M. Djurković, M. Protić, J. Arsenijević, A. Kubičela, O. Kovačević,

R. Grujić, Lj. Dačić, M. Djokić, Č. Čepinac

OBSERVATIONS DU SOLEIL EN 1957, 1958 ET 1959

A L'OBSERVATOIRE ASTRONOMIQUE DE BEOGRAD

№ 12 (1968)

Editor : P. M. Djurković

SIMPOZIJUM ASTRONOMA JUGOSLAVIJE

POVODOM 75. GODIŠNJICE OSNIVANJA ASTRONOMSKE

OPSERVATORIJE U BEOGRADU (1887 - 1962)

№ 13 (1967)

G. Teleki

A CONTRIBUTION INTO THE RESEARCH OF ASTRONOMICAL

REFRACTION AND ITS ANOMALIES ON THE BASIS OF

AEROLOGICAL MEASUREMENTS CARRIED OUT IN BEOGRAD

№ 14 (1968)

RADOVI NA ISPITIVANJU FUNDAMENTALNIH ASTROMETRIJSKIH

INSTRUMENATA, NJIHOVIH ORGANA I PRIBORA

TRAVAUX SUR L'EXAMEN DES INSTRUMENTS ASTROMETRIQUES

FONDAMENTAUX, DE LEUR ORGANES ET ACCESSOIRES

№ 15 (1968)

Aleksandar Kubičela

UNE MODIFICATION DU SPECTROGRAPHE CHROMOSPHERIQUE

A PLAQUE MOBILE

№ 16 (1969)

Editor : P. M. Djurković

RADOVI PRIKAZANI NA IV KONGRESU

MATEMATIČARA, FIZIČARA I ASTRONOMA, OKTOBRA 1965 U SARAJEVU

№ 17 (1972)

Sofija N. Sadžakov, Dušan P. Šaletić

CATALOGUE OF DECLINATIONS OF THE LATITUDE

PROGRAMME STARS (KŠZ)

№ 18 (1974)

Editor : G. Teleki

THE PRESENT STATE AND FUTURE OF THE ASTRONOMICAL

REFRACTION INVESTIGATIONS

Proceedings of the Study Group on Astronomical Refraction

of the International Astronomical Union Commission 8

№ 19 (1974)

Georgije M. Popović

THE FIRST GENERAL CATALOGUE OF DOUBLE-STAR  
OBSERVATIONS MADE IN BELGRADE, 1951-1971

№ 20 (1975)

Editor : Dj. Teleki

ZBORNIK RADOVA NACIONALNE KONFERENCIJE  
JUGOSLOVENSKIH ASTRONOMA - 1973, BEOGRAD  
PROCEEDINGS OF THE NATIONAL CONFERENCE  
OF YUGOSLAV ASTRONOMERS - 1973, BELGRADE

№ 21 (1975)

S. Sadžakov, D. Šaletić

DECLINATIONS AND THE PROPER MOTIONS OF THE STARS  
OF THE INTERNATIONAL LATITUDE SERVICE ON THE BASIS  
OF MERIDIAN CATALOGUES FROM 1929 TO 1972.

№ 22 (1975)

Ivan Pakvor

ISPITIVANJE NAGLAVAKA VELIKOG PASAŽNOG INSTRUMENTA  
ASTRONOMSKE OPSERVATORIJE U BEOGRADU  
PIVOT-EXAMINATIONS OF BELGRADE OBSERVATORY'S  
LARGE TRANSIT INSTRUMENT

№ 23 (1975)

Lj. A. Mitić

PRIPREMNI RADOVI NA VELIKOM PASAŽNOM INSTRUMENTU  
BEOGRADSKE OPSERVATORIJE  
PREPARATION OF THE LARGE TRANSIT INSTRUMENT OF THE  
BELGRADE OBSERVATORY FOR REGULAR OBSERVATION

№ 24 (1978)

Sofija N. Sadžakov

IZVEDENI KATALOG ŠIRINSKIH ZVEZDA (IKŠZ)  
GENERAL CATALOGUE OF LATITUDE STARS (IKŠZ)

№ 25 (1978)

Danilo J. Zulević

PRIOG STATISTIČKOM ISPITIVANJU UTICAJA ODNOSA MASA  
KOMPONENATA NA DINAMIČKE PUTANJSKE ELEMENTE (e, P, a)  
KOD VIZUELNO DVOJNIH ZVEZDA  
STATISTICAL INVESTIGATION OF THE RELATION BETWEEN THE  
MASS RATIO AND THE DYNAMICAL ORBITAL ELEMENTS e, P, a  
OF THE VISUAL BINARIES



№ 26 (1979)

Editor : Dj. Teleki

ZBORNIK RADOVA III NACIONALNE KONFERENCIJE  
JUGOSLOVENSKIH ASTRONOMA, BEOGRAD, 1977.  
PROCEEDINGS OF THE III NATIONAL CONFERENCE  
OF YUGOSLAV ASTRONOMERS, BELGRADE, 1977.

№ 27 (1979)

S. N. Sadžakov

ISPITIVANJE SISTEMATSKIH GREŠAKA TIPA  $\Delta\delta_\alpha$  ŠIRINSKIH  
POSMATRANJA RAZNIH OPSERVATORIJA NA OSNOVU NJIHOVOG  
UPOREDŽIVANJA SA BEOGRADSKIM IZVEDENIM KATALOGOM  
ŠIRINSKIH ZVEZDA I FOTOGRAFSKIM KATALOGOM AGK3

INVESTIGATION OF THE SYSTEMATIC  $\Delta\delta_\alpha$  - TYPE ERRORS IN LATITUDE  
OBSERVATIONS OF VARIOUS OBSERVATORIES BY THEIR COMPARISON  
WITH BELGRADE GENERAL CATALOGUE OF LATITUDE STARS AND THE  
PHOTOGRAPHIC CATALOGUE AGK3

№ 28 (1980)

Jelisaveta Arsenijević

POLARIZACIJA ZRAČENJA NEKIH HLADNIH SUPERDŽINOVA

№ 29 (1982)

Editors : G. Teleki, B. Ševarlić

EPITOME FUNDAMENTORUM ASTRONOMIAE, Pars II  
Photographic Catalogues and Charts of Star Positions

№ 30 (1981)

S. N. Sadžakov, D. P. Šaletić, M. D. Dacić

KATALOG ZVEZDA PROGRAMA SFZT  
CATALOGUE OF NPZT PROGRAMME STARS

№ 31 (1981)

ASTROKLIMATSKA ISTRAŽIVANJA ZA IZBOR MESTA VISINSKE STANICE  
ASTRONOMSKE OPSERVATORIJE U BEOGRADU  
ASTROCLIMATIC EXPLORATIONS FOR SITE SELECTION OF THE HIGH  
ALTITUDE STATION OF THE BELGRADE OBSERVATORY

№ 32 (1984)

Vojislava Protić-Benišek

MERKUROVI PROLAZI I PARALAKSA SUNCA  
TRANSITS OF MERCURY AND SOLAR PARALLAX

№ 33 (1985)

Editor : G. M. Popović

ZBORNIK RADOVA VI NACIONALNE KONFERENCIJE  
JUGOSLOVENSKIH ASTRONOMA, HVAR, 1983.  
PROCEEDINGS OF THE VI NATIONAL CONFERENCE  
OF YUGOSLAV ASTRONOMERS, HVAR, 1983

№ 34 (1986)

Božidar Popović

EQUATIONS DES PERTURBATIONS DES ELEMENTS HELIOCENTRIQUES  
VECTORIELS DES ORBITES DES PETITES PLANETES ET COMETES

№ 35 (1987)

Editor : G. Teleki

PROCEEDINGS OF THE WORKSHOP ON REFRACTION DETERMINATION  
IN THE OPTICAL AND RADIO ASTROMETRY, LENINGRAD, USSR, 1985

№ 36 (1989)

STO GODINA ASTRONOMSKE OPSERVATORIJE U BEOGRADU

№ 37 (1989)

Vladimir Kršljanin

ŠTARKOV POMAK JONSKIH LINIJA KOD TOPLIH ZVEZDA  
ION LINES STARK SHIFTS IN SPECTRA OF HOT STARS

№ 38 (1990)

S. N. Sadžakov, M. D. Dačić

BEOGRADSKI KATALOG DVOJNIH ZVEZDA  
BELGRADE CATALOGUE OF DOUBLE STARS

№ 39 (1990)

Milan S. Dimitrijević

ISTRAŽIVANJA OBLIKA SPEKTRALNIH LINIJA U JUGOSLAVIJI 1962 - 1985

(Bibliografija i indeks citata)

LINE SHAPES INVESTIGATIONS IN YUGOSLAVIA 1962 - 1985

(Bibliography and citation index)

№ 40 (1990)

Editors : G. Teleki and B. Ševarlić

EPITOME FUNDAMENTORUM ASTRONOMIAE, Pars III  
Parallaxes, Proper Motions and Radial Velocities

№ 41 (1991)

Milan S. Dimitrijević

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(1985 - 1989)

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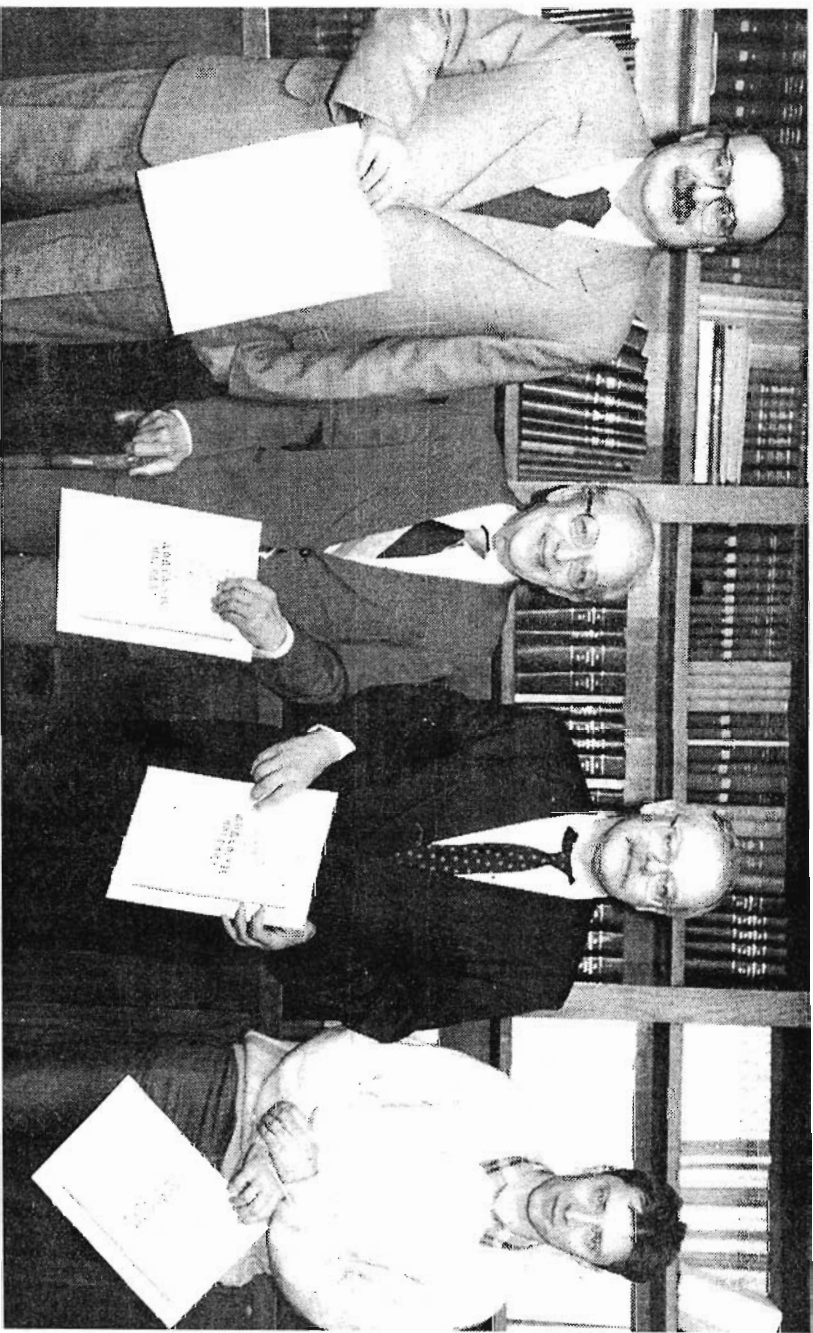


Fig. 1. Winners of the Astronomical Observatory Prize for 1996. Dr Zoran Knežević, the winner of the prize for the contribution to the development of the Astronomical Observatory (for fellows of Astronomical Observatory); Dr Branislav Ševarić, the winner of the prize for the contribution to the development of the Astronomical Observatory; Dr Milan S. Dimitrijević, the winner of the prize for science; M.Sc. Ljubinko Ignjatović, the winner of the prize for science for youngs.

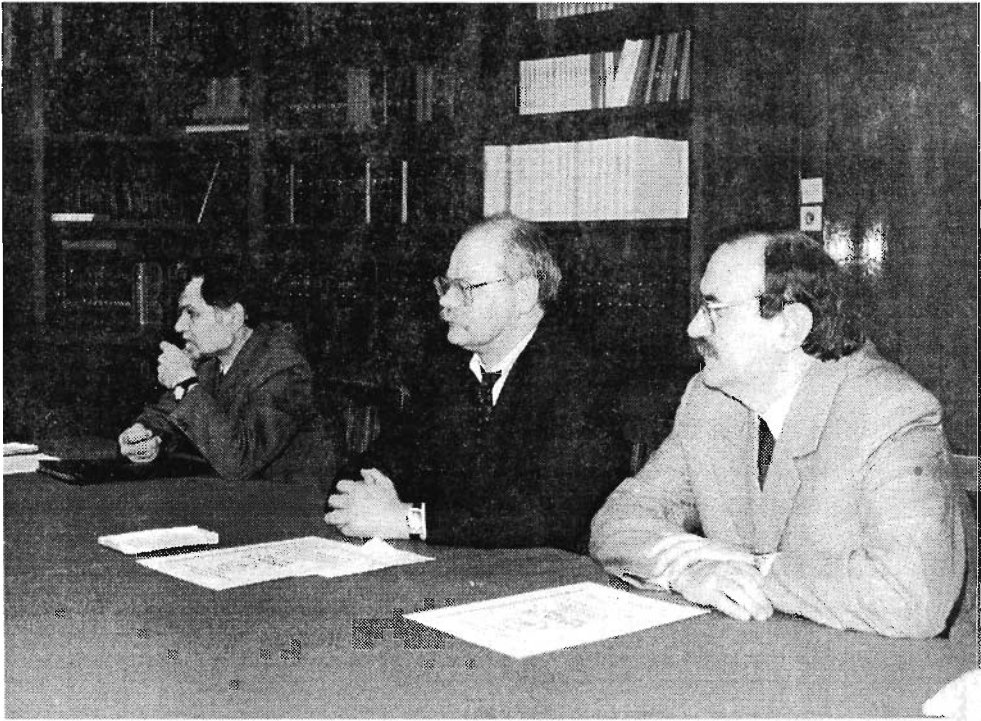


Fig. 2. The Day of the Observatory Celebration 5. IV. 1996. Dr S. Ninković, Dr M. S. Dimitrijević, Dr Z. Knežević.

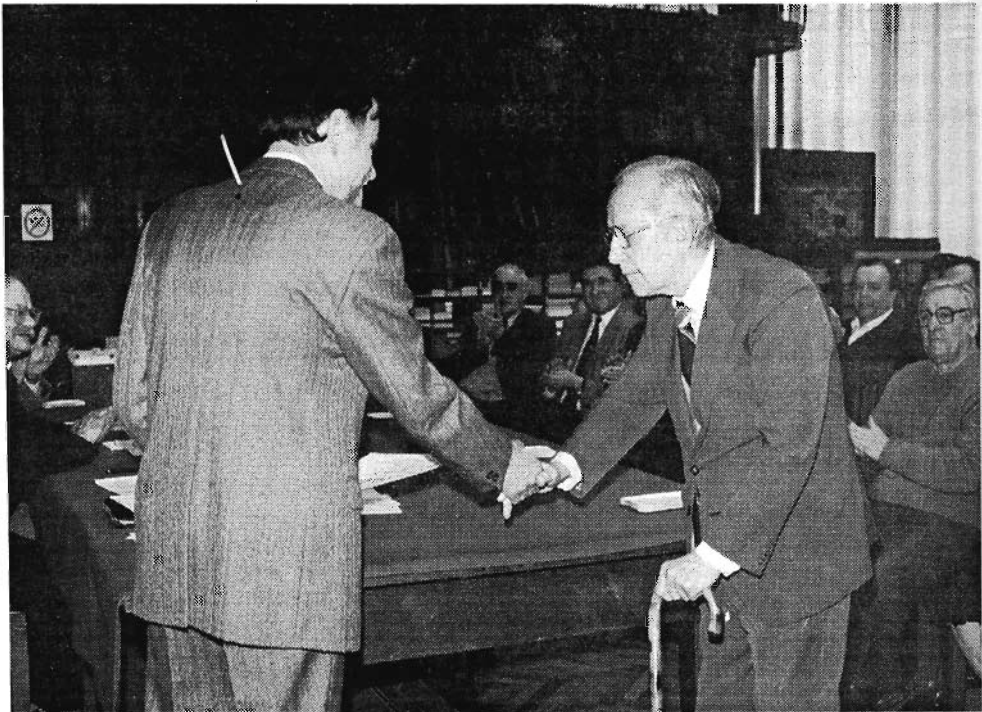


Fig. 3. Prof. Dr Branislav Ševarlić, the winner of the prize for the contribution to the development of the Astronomical Observatory.



Fig. 4. The Day of the Observatory Celebration 5. IV. 1996. The front row: Dr. Georgi Konstantinov (Director of the Institute "Mihajlo Pupin"); Dr. Mladen Marković (Agroekonomik); Dr. Rade Protić (Agroekonomik); Milorad Djokić, Prof. Dr. Jelena Milogradov-Turin (the head of the People's Observatory); Prof. Dr. Branislav Ševarlić. The second row: Dr. Anatolij Mihajlov, M.Sc. Ljubinko Ignjatović, M.Sc. Slobodan Žegarac (Director of the Seismological Institution); M.Sc. Slavoljub Maksimović (Director of the Federal Hydrometeorological Institution); Blagota Žarković (Director of the Institution for the Protection of the Intellectual Property); Dr. Zoran Marković (Vice-director of the Federal Institution for Measures and Precisions Metals).



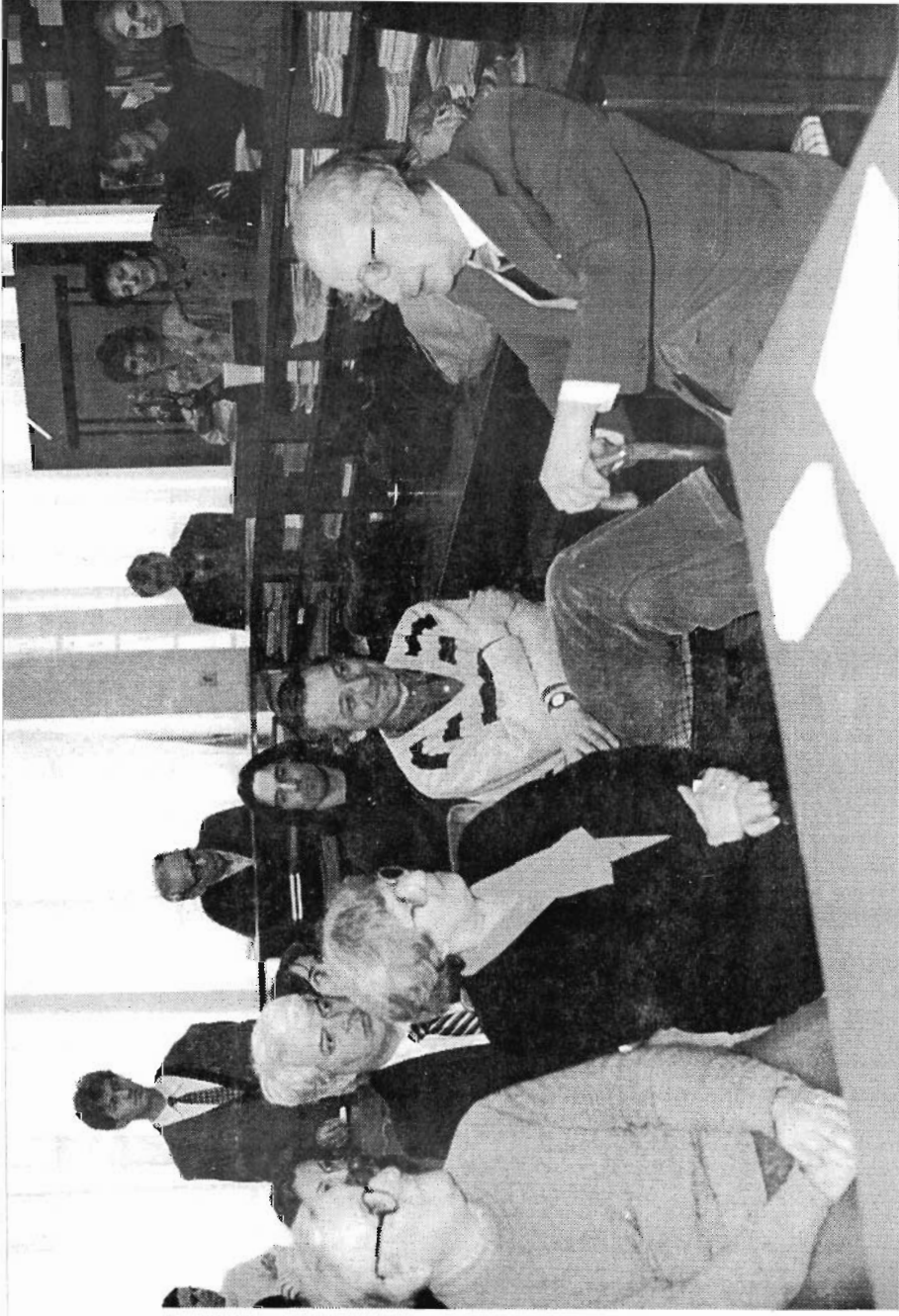


Fig. 5. The Day of the Observatory Celebration 5. IV. 1996. The front row: Milorad Djokić, Prof. Dr Jelena Milogradov-Turin, Prof. Dr Trajko Angelov, Prof. Dr Branislav Sevarlić.



Fig. 6. The Day of the Observatory Celebration 5. IV. 1996. Prof. Dr Ištvan Vince, Dr Slobodan Ninković, Milorad Djokić, Dr Aleksandar Kubičela, Prof. Dr Djuro Koruga.



Fig. 7. The Day of the Observatory Celebration 5. IV. 1996. M.Sc. Zorica Cvetković, Dr Slobodan Ninković, Dr Nadežda Pejović, Dr Olga Atanacković-Vukmanović.



Fig. 8. The Day of the Observatory Celebration 5. IV. 1996. Prof. Dr Janko Radulović (Federal Minister for Development, Science and Environment) Dr Milan S. Dimitrijević, Dr Milorad Stojić (Archaeological Institute) Dr Bora Jovanović (Archaeological Institute).



Fig. 9. The Day of the Observatory Celebration 5. IV. 1996. Aleksandar Dačić (journalist), Radonja Minić (Vice Minister for Development, Science and Environment), Dr Zoran Marković, M.Sc. Slavoljub Maksimović, Blagota Žarković.



Fig. 10. The Day of the Observatory Celebration 5. IV. 1996. Prof. Dr Mike Kuzmanoski (the Head of the Department of Astronomy), Prof. Dr Branislav Ševarlić.



Fig. 11. The Day of the Observatory Celebration 5. IV. 1996. Milan Jelčić, Secretary of the People's Observatory, Prof. Dr Branislav Ševarlić.



Fig. 12. Participants of the Astrophysical plasmas section at the XVIII Int. Symp. Phys. Ioniz. Gases, Kotor 2-6. IX. 1996. Dr. Stepan Gopasyuk (Crimean Astrophysical Observatory), Dr. Nina Polosukhina (Crimean Astrophysical Observatory), Dr. Anatolij A. Mihajlov, M.Sc. Miodrag Dacić, Prof. Dr Istvan Vince, Prof. Dr Myakzyum Kh. Salakhov (Kazan State University).





Fig. 13. Participants of the Astrophysical plasmas section of the XVIII Int. Symp. Phys. Ioniz. Gases, Kotor 2-6. IX. 1996. Dr. Anatolij A. Mihajlov, Prof. Dr. Nicholas Spyrou (Aristoteles University of Thessaloniki), Prof. Dr. Nikola Konjević, M.Sc. Jelisaveta Arsenijević, Prof. Dr. Mykzym Kh. Salakhov (Kazan State University), Dr. Milan S. Dimitrijević, Dr. Gojko Djurašević, Dr. Nina Polosukhina (Crimean Astrophysical Observatory), M.Sc. Zorica Cvetković, Dr. Stepan Gopasyuk (Crimean Astrophysical Observatory), Prof. Dr. Istvan Vince, M.Sc. Miodrag Dačić.

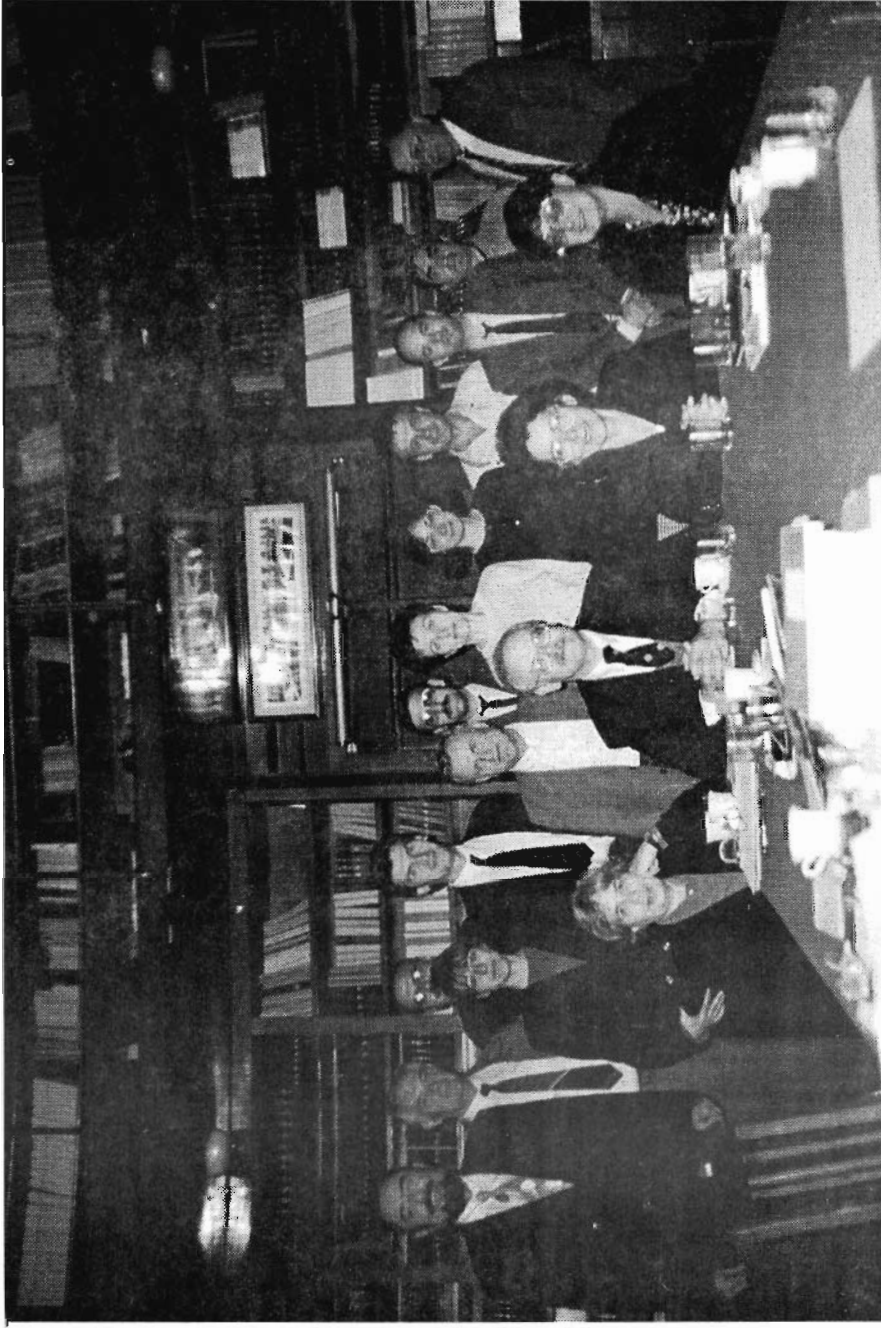


Fig. 14. Participants of the II Yugoslav-Romanian round table on cooperation in astronomy, Belgrade 8. X. 1996. standing: Petre Popescu, Lucian Burs, Dr Zoran Knežević, Veselka Trajkovska, Dr Luka Č. Popović, M.Sc Dragomir Olević, Alexandru Horvat, M.Sc. Zorica Cvetković, Dr Olga Atanacković-Vukmanović, Dr Gojko Djurašević, Laslo Farkas, M.Sc. Miodrag Dacić, Dr Istvan Vince. front row: Prof. Dr Jelena Mitrogradov-Turin, Dr Milan S. Dimitrijević, Dr Magdalena Stavinschi, M.Sc. Vojislava Protić-Benišek.



Fig. 15. XI National Conference of Yugoslav Astronomers Belgrade 9-11. X. 1996. Dr Paul Paquet (Observatoire Royale De Belgique, Bruxelles, Member of the Editorial board of Bull. Astron. Belgrade).



Fig. 16. XI Nat. Conf. Yug. Astronomers Dr Magdalena Stavinschi (Director of Bucharest Astronomical Observatory), Cochairman of the I and II Yugoslav-Romanian Round Table on Cooperation in Astronomy.



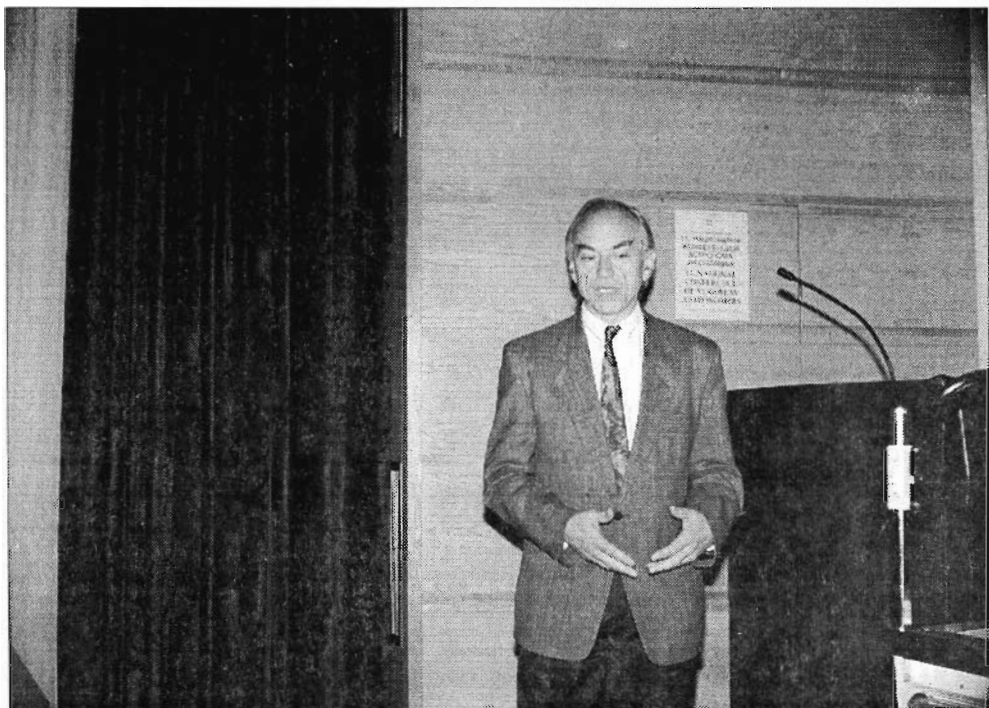


Fig. 17. XI Nat. Conf. Yug. Astron. Dr Lajos Balász (Director of Konkoly Observatory, Budapest, Cochairman of the I and II Yugoslav-Hungarian Astronomical Conference).



Fig. 18. XI Nat. Conf. Yug. Astron. Dr V. S. Gubanov (Institute of Applied Astronomy of the RAS, St. Petersburg).



Fig. 19. XI Nat. Conf. Yug. Astron. Prof. Dr Mijat Mijatović, (Faculty of Sciences, Skopje), and Prof. Dr Ištvan Vince as the chairman of the session.



Fig. 20. XI Nat. Conf. Yug. Astron. Dr Stevo Šegan, President of the LOC.



Fig. 21. XI Nat. Conf. Yug. Astron. Dr Branko Dragović (Institute of Physics).



Fig. 22. XI Nat. Conf. Yug. Astron. Dr Luka Č. Popović.



Fig. 23. XI Nat. Conf. Yug. Astron. M.Sc. Dragomir Olević, Prof. Dr Dragutin Djurović, Vesna Živkov.



Fig. 24. XI Nat. Conf. Yug. Astron. Prof. Dr Jelena Milogradov-Turin.





Fig. 25. XI Nat. Conf. Yug. Astron. Dr Petre Popescu (Bucharest), Dr Magdalena Stavinschi (Bucharest), Prof. Dr Mirjana Vukićević-Karabin, Chairman of the SOC.



Fig. 26. XI Nat. Conf. Astron. Yug. Dr Magdalena Stavinschi (Bucharest), Prof. Dr Mijat Mijatović (Skopje), Dr Milan S. Dimitrijević.

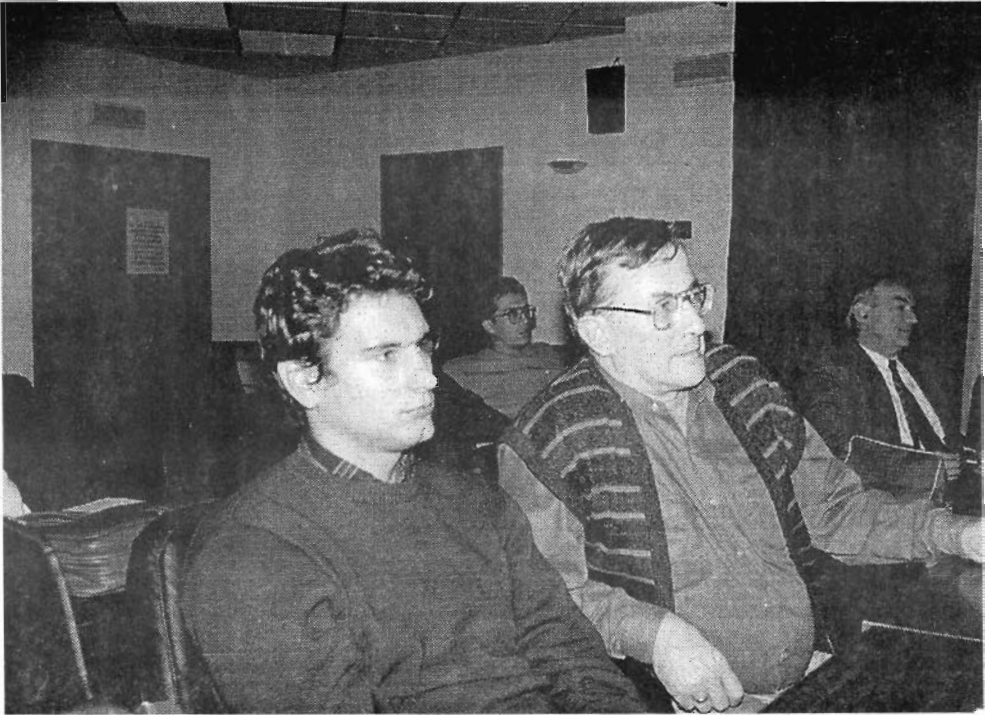


Fig. 27. XI Nat. Conf. Astron. Yug. M. M. Vasiljević, Dr Anatolij A. Mihajlov.

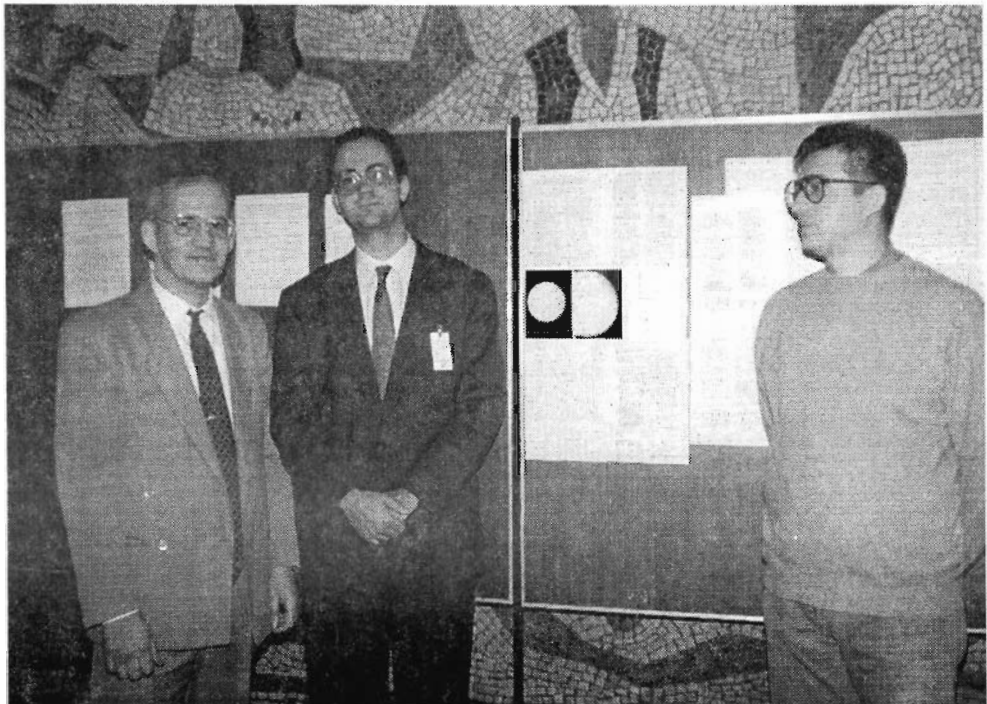


Fig. 28. XI Nat. Conf. Astron. Yug. Aleksandar Tomić, M.Sc. Milan Ćirković, M.Sc. Rade Pavlović.



Fig. 29. XI Nat. Conf. Astron. Yug. Dr Aleksandar Kubičela, M.Sc. Vojislava Protić-Benišek, Dr Istvan Vince.

Author of Fig. 1. Zoran Jovanović. Author of