

**18-th Gamow Summer School**  
**“ASTRONOMY AND BEYOND: ASTROPHYSICS,**  
**COSMOLOGY, COSMOMICROPHYSICS,**  
**ASTROPARTICLE PHYSICS, RADIOASTRONOMY**  
**AND ASTROBIOLOGY”**

*August 12-18, 2018, Odessa, Ukraine*

**AGENDA**

**SECTIONS:**

- 1. Cosmology, gravitation, astroparticle physics, high energy physics**  
*(Chairs V.M.Shulga, B.S.Novosyadly)* **August, 13-14**
  - 2. Astrophysics** *(Chairs I.L.Andronov, T.V.Mishenina)* **August, 13-14**  
  
Subsection «**Astroinformatics**» *(Chair I.B.Vavilova)* **August, 17**
  - 3. Radioastronomy** *(Chairs O.A.Litvinenko, O.M.Ulyanov)* **August, 15-16**
  - 4. Solar activity, solar-terrestrial relations, astrobiology**  
*(Chairs V.M.Efimenko, M.I.Ryabov)* **August, 17**
  - 5. Solar system** *(Chair N.I.Koshkin)* **August, 15-16**
- Attached Section “**Ukrainian planetarium association**”  
*(Chairs V.A.Zakhozhay, G.V.Zheleznyak)* **August, 13**
- and Subsection “**Physical and astronomical education within the framework of the Minor Academy of Sciences of Ukraine**” *(Chairs I.L.Andronov, V.P.Olyeynik)* **August, 15**

# SCHEDULE OF THE PLENARY AND SECTION SESSIONS

## Plenary sessions (August, 13 – 16)

**09:30 – 13:00** *Conference Hall “Grand Marine”*

## Section sessions (August, 13 – 17)

*Conference Rooms of the Sports and Recreation Centre “Chernomorka”*

Data Section	13.08	14.08	15.08	16.08	17.08
Section 1. <b>Cosmology, gravitation, astroparticle physics, high energy physics</b>	<b>14.30–18.00</b> Conference Room <b>(1 floor)</b>	<b>14.30–18.00</b> Conference Room <b>(1 floor)</b>			
Section 2. <b>Astrophysics</b>	<b>14.30–18.00</b> Conference Room <b>(2 floor)</b>	<b>14.30–18.00</b> Conference Room <b>(2 floor)</b>			
Subsection “ <b>Astroinformatics</b> ”					<b>9.30–13.00</b> Conference Room <b>(2 floor)</b>
Section 3. <b>Radio-astronomy</b>			<b>14.30–18.00</b> Conference room <b>(2 floor)</b>	<b>14.30–18.00</b> Conference room <b>(1 floor)</b>	
Section 4. <b>Sun, Solar activity and Astrobiology</b>					<b>14.30–18.00</b> Conference room <b>(2 floor)</b>
Section 5. <b>Solar system</b>			<b>14.30–18.00</b> Conference Room <b>(1 floor)</b>	<b>14.30–18.00</b> Conference Room <b>(2 floor)</b>	
Attached Section. <b>Planetariums of Ukraine and Education</b>	<b>14.30–18.00</b> Conference Room <b>(3 floor)</b>		<b>14.30–18.00</b> Conference Room <b>(3 floor)</b>		
<b>Discussion and Posters</b>					<b>14.30–18.00</b> Conference room <b>(1 floor)</b>

# **ПРОГРАММА МЕРОПРИЯТИЙ**

## **12 августа - воскресенье**

**Вечер-встреча участников конференции  
(программа будет объявлена дополнительно)**

**Начало в 19:00**

*Конференц-зал базы отдыха “Черноморка” (2 этаж)*

## **13 августа - понедельник**

**Открытие XVIII Гамовской конференции-школы**

**Начало в 09:30**

*(Конференц-зал отеля “Гранд Марин”)*

**Фотографирование участников конференции после пленарной сессии  
(~12:45)**

*(Вход в отель “Гранд Марин”)*

**Фуршет 20:00 – 22:30**

## **14 августа – вторник**

**Концерт авторской песни**

## **15 августа – среда**

**Морская прогулка**

## **16 августа – четверг**

**Заседание Бюро УАА (19:00-20:30)**

**Товарищеский ужин (20:30-23:00)**

## **18 августа – суббота**

**Экскурсия по Одессе (пересечение жизненного пути Гамова и Глушко)**

# PROGRAMM

## Monday, 13.08.2018

**09:30 – 10:00**      **OPENING OF THE CONFERENCE, MEMORIAL REPORTS AND GREETING TALKS** (*Conference Hall “Grand Marine”*)

**Convener – V.M.Shulga**

Greetings of the rector of Odessa I.I. Mechnikov University *I.N.Koval*

Greetings of the President of Ukrainian Astronomical Associating *Ya.S.Yatskiv*

**10:00 – 11:15**      **MEMORIAL SESSIONS** (*Conference Hall “Grand Marine”*)

*Yatskiv Ya.S.* ASTRONOMY IN UKRAINE (100th ANNIVERSARY OF THE NATIONAL ACADEMY OF SCIENCES OF UKRAINE)

*Рябов М.И., Рукун И.Е.* К 110-ЛЕТИЮ В.П.ГЛУШКО

*Mishenina T.V.* NIKOLAY S. KOMAROV AND DEVELOPMENT OF SPECTROSCOPY AT ODESSA ASTRONOMICAL OBSERVATORY

**11:15 – 11:35**      **Coffee break**

**11:35 – 12:00**      **MEMORIAL SESSIONS** (*Conference Hall “Grand Marine”*)

*Каретников В.Г., Драгунова А.В.* К 150-ЛЕТИЮ Л.Д.ПОКРОВСКОГО

**12:00 – 12:40**      **PLENARY SESSION** (*Conference Hall “Grand Marine”*)

*Chernin A.D.* DARK ENERGY AND THE BASIC STRUCTURES OF THE LOCAL UNIVERSE

## Tuesday, 14.08.2018

**09:30 – 11:00**      **PLENARY SESSION** (*Conference Hall “Grand Marine”*)

**Convener – A.D.Chernin**

*Bisnovatyi-Kogan G.S.* GRAVITATIONAL LENSING AND BLACK HOLE SHADOW

*Zakhozhay V.A.* HIERARCHICAL STRUCTURE OF THE UNIVERSE

*Panko E.* DETAIL MORPHOLOGY OF THE GALAXY CLUSTERS

**11:00 – 11:20**      **Coffee break**

**11:20 – 12:50**      **PLENARY SESSION** (*Conference Hall “Grand Marine”*)

**Convener – G.S.Bisnovatyi-Kogan**

*Kovtyukh V.V., Usenko I.A., Knyazev A.Yu.* YOUNG OBJECTS OF THE GALAXY: LITHIUM AND BIMODAL CLASSICAL CEPHEIDS

*Andronov I.L.* ADVANCED METHODS FOR TIME SERIES ANALYSIS OF IRREGULARLY SPACED DATA

*Kolesnikov S.V.* DEVELOPMENT OF THE METHOD OF APERTURE POLARIMETRY IN THE CRIMEAN SCHOOL: INSTRUMENTS, TECHNIQUES AND SOFTWARE

## **Wednesday, 15.08.2018**

**09:30 – 11:00**      **PLENARY SESSION** (*Conference Hall “Grand Marine”*)

**Convener** – *V.A.Zakhozhay*

*Miroshnichenko L.I.* EXTREME SOLAR FLARES BY THE DATA ON "ANCIENT" PROTON EVENTS

*Vavilova I.B.* BEHIND THE MILKY WAY AVOIDANCE ZONE: WHAT CAN WE RECOGNIZE BY DIRECT AND INDIRECT METHODS?

*Lozitsky V., Yurchyshyn V., Ahn K., Wang H., Lozitska N.* SUPER-STRONG MAGNETIC FIELDS IN ACTIVE REGIONS ON THE SUN: HISTORICAL ASPECT AND NEW OBSERVATIONAL DATA

**11:00 – 11:20**      ***Coffee break***

**11:20 – 12:50**      **PLENARY SESSION** (*Conference Hall “Grand Marine”*)

**Convener** – *L.I.Miroshnichenko*

*Oknyansky V., Shenavrin V., Metlova N., Gaskell M.* RELATIVE WAVELENGTHS INDEPENDENCE OF IR LAGS IN NGC 4151 DURING 2010-2015

*Kudashkina L.S.* SEMI-REGULAR VARIABLE STARS

*Doikov D.N., Andrievsky S.M., Yushchenko A.V.* POSITRON SPECTROSCOPY OF ACTIVE GALACTIC NUCLEI

## **Thursday, 16.08.2018**

**09:30 – 11:00**      **PLENARY SESSION** (*Conference Hall “Grand Marine”*)

**Convener** – *I.B.Vavilova*

*Burduzha V.* NEW IN X-RAY AND GAMMA-RAY ASTRONOMY

*Stodilka M.I.* SOLAR FACULAE: PHYSICAL CONDITIONS, LOCAL DYNAMO, ANISOTROPY OF MICROTURBULENCE

*Bezrukovs V., Avotins V., Plume D.* VENTSPILS INTERNATIONAL RADIO ASTRONOMY CENTRE: VIEW FROM PAST TO THE FUTURE

**11:00 – 11:20**      ***Coffee break***

**11:20 – 12:30**      **PLENARY SESSION** (*Conference Hall “Grand Marine”*)

**Convener** – *M.I.Stodilka*

*Orlyuk M.I.* SPATIAL-TEMPORAL PERTURBATION OF THE GEOMAGNETIC FIELD OF CERTAIN TERRITORIES IN THE NORTHERN AND SOUTHERN HEMISPHERES OF THE EARTH: ECOLOGICAL ASPECT

*Ryabov M.I.* VARIABILITY OF SOLAR CONSTANT AND OTHER INDICES OF SOLAR ACTIVITY AND THE EFFECTS OF THEIR MANIFESTATIONS IN THE SOLAR-TERRESTRIAL RELATIONSHIPS

**12:30 – 13:00**      **CLOSING OF THE CONFERENCE**

## SECTION SESSIONS

### COSMOLOGY, GRAVITATION, HIGH ENERGY PHYSICS, ASTROPARTICLE PHYSICS

**Monday, 13.08.2018**

**14:30 – 16:10 Section session** (*Conference Room in “Chernomorka”, 1 floor*)

**Convener** – *B.S. Novosiadlyi*

1. *Bronza S.D., Svyrydova Ju.V., Kotvytska L.A.* THE ANALYSIS OF IMAGES OF A CIRCULAR SOURCE IN N-POINT GRAVITATIONAL LENSES
2. *Savchenko D.O., Iakubovskyi D.A.* RECENT RESULTS ON 3.5 KEV LINE SEARCHES
3. *Kotvytskiy A.T., Shablenko V.Yu., Bronza E.S.* THE RESEARCH OF THE FIXED POINTS OF THE LENS MAPPING
4. *Shevchenko S.Yu., Voitsekhovskiy V.V., Tugay A.V., Tkachuk V.V.* X-RAY EMISSIONS OF ICRF SOURCES
5. *Stashko O.S., Zhdanov V.I.* GEODESIC STRUCTURE OF SPACE-TIMES AROUND STATIC COMPACT OBJECTS WITH SCALAR FIELDS
6. *Turinov A. N.* TWO-LAYER RELATIVISTIC CONFIGURATIONS WITH ANISOTROPY OF PRESSURE IN THE GENERAL THEORY OF RELATIVITY
7. *Tugay A.V., Voycehovskiy V.V.* GAUSSIAN FIELD MODEL FOR GALAXY DISTRIBUTION

**16:10 – 16:30 Coffee break**

**16:30 – 18:00 Section session** (*Conference Room in “Chernomorka”, 1 floor*)

**Convener** – *V.D.Gladush*

8. *Olyeynik V.P.* ON THE TETRAD APPROACH IN GENERAL RELATIVITY: AN ARBITRARY NONORTHOGONAL TETRAD, CONTINUITY EQUATIONS, AND SO ON
9. *Zhoga A.A., Tugay A.V., Pulatova N.G.* NUMERICAL ESTIMATOR FOR LARGE-SCALE COSMIC STRUCTURES
10. *Novosyadlyj B., Shulga V., Han W., Kulinich Yu., Tsizh M.* HALOS IN DARK AGES: FORMATION AND CHEMISTRY
11. *Sergijenko O.* 2-FIELD MODEL OF DARK ENERGY WITH CANONICAL AND NON-CANONICAL KINETIC TERMS
12. *Korshunov V., Yemelianov S., E. Panko E.A.* MORPHOLOGY OF GALAXY CLUSTERS IN SUPERCLUSTERS
13. *Panko E., Yemelianov S., Stepaniuk A.* DETAIL MORPHOLOGY OF THE RICH CONCENTRATED GALAXY CLUSTERS
14. *Zabolotnii V., Yemelianov S., Korshunov V., Panko E.* DETAIL MORPHOLOGY OF THE RICH GALAXY CLUSTERS WITH INTERMEDIATE CONCENTRATION

**Tuesday, 14.08.2018**

**14:30 – 16:10 Section session** (*Conference Room in “Chernomorka”, 1 floor*)

**Convener** – *V.I.Zhdanov*

15. *Dmytriiev M.S., Gladush V.D.* EINSTEIN-HAMILTON-JACOBI EQUATION SOLUTION IN THE T-REGION OF SPHERICALLY SYMMETRIC CONFIGURATION OF GRAVITATIONAL, ELECTROMAGNETIC AND SCALAR FIELDS
16. *Gladush V.D.* ON THE CONFIGURATION SPACE OF A SPHERICALLY SYMMETRIC SYSTEM OF GRAVITATIONAL AND ELECTROMAGNETIC FIELDS

17. *Holovko M.G., Gladush V.D.* SUPERSPACE APPROACH TO THE QUANTIZATION OF CHARGED BLACK HOLES WITH ALLOWANCE FOR THE COSMOLOGICAL CONSTANT
18. *Pankov A.A.* FIRST RESULTS ON PRECISE DETERMINATION OF  $Z-Z'$  MIXING WITH ATLAS AND CMS DIBOSON PRODUCTION DATA AT THE LHC AT 13 TeV AND PREDICTIONS FOR RUN 2
19. *Minaiev P., Skalozub V.* THE ELECTROWEAK PHASE TRANSITION IN A SPONTANEOUSLY MAGNETIZED VACUUM
20. *Rudakovskiy A.* DARK MATTER MODEL FAVOURED BY REIONIZATION DATA: 7-KEV STERILE NEUTRINO VS COLD DARK MATTER
21. *Gerasymov O.I., Kudashkina L.S.* THE DENSITY OF MATTER: FROM MICRO-MECHANICAL (GRANULAR) TO MACRO-MECHANICAL (UNIVERSE) SYSTEMS

**16:10 – 16:30** *Coffee break*

**16:30 – 18:00** **Section session** (*Conference Room in “Chernomorka”, 1 floor*)

**Convener** – *V.A.Tarasov*

22. *Ryazantsev G.B., Khaskov M.A.* 3D-FORM OF THE PERIODIC SYSTEM OF CHEMICAL ELEMENTS OF GAMOW AND ITS DEVELOPMENT
23. *Ryazantsev G.B., Lavrenchenko G.K., Beckman I.N., Buntseva I.M.* CONDENSATION OF COLD NEUTRONS – IDEA OF G.A.GAMOW. ON THE POSSIBILITY OF OBTAINING A NEUTRON SUBSTANCE IN LABORATORY CONDITIONS.
24. *Chudak N.O.* THE ROLE OF SIMULTANEITY IN THE RELATIVISTIC QUANTUM MECHANICAL MEASUREMENTS
25. *Merkotan K.K.* AN ALTERNATIVE METHOD OF INTRODUCING THE ELECTROMAGNETIC INTERACTION INTO THE STANDARD MODEL
26. *Potiienko O.S.* A NEW METHOD FOR MONTE-CARLO EVENT GENERATORS OF THE SCATTERING PROCESSES
27. *Ptashynskiy D.* THE LAPLACE METHOD FOR LOOPLESS DIAGRAMS IN THE MULTIPARTICLE FIELDS MODEL
28. *Sharph I.V.* THE DYNAMIC MECHANISM OF A SPONTANEOUS SYMMETRY BREAKING IN THE MULTI-PARTICLE FIELDS METHOD

## POSTERS

29. *Murnikov B.A.* DARK MATTER IN GALAXIES – ONE OF THE MOST INTRIGUING PUZZLES IN MODERN COSMOLOGY
30. *Chernezhenko S.A., Kakaev A.A., Rybak A.V., Smolyar V.P., Tarasov V.A., Tverdokhlib Y.A., Urbanevich V.V.* THE THEORY AND SIMULATION OF THE NEUTRON MODERATION SPECTRUMS IN HOMOGENEOUS URANIUM-CARBON MEDIA FOR CONTROLLED NUCLEOSYNTHESIS
31. *Shapovalov G.V., Muntyan Yu.N.* ON PLEBANSKI-DEMYANSKI-TYPE METRIC IN GR WITH FLOWS
32. *Bukalov A.V.* THE SOLUTION OF THE COSMOLOGICAL CONSTANT PROBLEM AND THE EVOLUTION OF THE UNIVERSE AND ITS STRUCTURE IN COSMOLOGICAL MODEL WITH SUPERCONDUCTIVITY
33. *Bukalov A.V.* ON THE NUMBER OF BARYONS IN THE OBSERVABLE UNIVERSE, THE MASS OF PROTON, AND THE POSSIBLE ORIGIN OF THE BARYON NUMBER IN THE COSMOLOGICAL MODEL WITH SUPERCONDUCTIVITY
34. *Bukalov A.V.* ON THE NATURE OF TIME

## ASTROPHYSICS

dedicated to the 80<sup>th</sup> anniversary of prof. Nikolay Komarov

**Monday, 13.08.2018**

**14:30 – 16:10 Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Convener** – *T.V.Mishenina*

1. *Mishenina T.V., Gorbaneva T.I.* MOLYBDENUM AND RUTHENIUM IN THE GALAXY
2. *Gopka V., Yushchenko V., Yushchenko A., Shavrina A., Andrievsky S., Shereta E.* THE CHEMICAL COMPOSITION OF NEUTRON-CAPTURE ELEMENTS IN THE ATMOSPHERES OF BL138 AND BL148
3. *Eglitis I., Sokolova A.* DISTRIBUTION OF CARBON STARS IN THE GALAXY
4. *Kashuba S.V., Andrievsky S.M., Luck R.E.* CORRELATION OF THE 620.2 nm AND 661.4 nm DIFFUSE INTERSTELLAR BANDS IN CEPHEID SPECTRA
5. *Marusiak V., Śzmiga S.* ДИФФУЗНЫЕ МЕЖЗВЕЗДНЫЕ ПОЛОСЫ. КВАНТОВО-ХИМИЧЕСКИЕ РАСЧЕТЫ АДСОРБЦИОННОГО СПЕКТРА ФУЛЛЕРЕНОВ.
6. *Velichko A.B., Fedorov P.N.* KINEMATICS OF THE MILKY WAY FROM VELOCITIES OF YOUNG RED CLUMP GIANTS USING THE PMA AND TGAS DR2 DATA
7. *Huseynov K.* SOLUTION OF THE COAGULATION EQUATION WITH A COAGULATION COEFFICIENT

**16:10 – 16:30 Coffee break**

**16:30 – 18:00 Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Convener** – *T.V.Mishenina*

8. *Zakhozhay V.A., Akhmetov V.S., Velichko A.B., Denishchenko S.I.* GAIA DATA RELEASE 2: THE PROBLEMS OF THE SOLAR NEIGHBORHOOD
9. *Zakhozhay V.A., Zabuga S.I.* DURATION OF BURNING HELIUM IN STELLAR INTERIOR
10. *Vasil'eva S., Yushchenko A., Gopka V., Kovtykh V., Jeong Y.* THE ABUNDANCES OF HEAVY ELEMENTS IN LOCAL GROUP GALAXIES. CEPHEIDS IN LMC AND SMC.
11. *Shereta E.P.* MOLYBDENUM ABUNDANCE IN SOME OPEN CLUSTERS
12. *Usenko I.A., Miroshnichenko A.S., Danford S., Turner D.G., Protsyuk Yu.I.* SPECTROSCOPIC INVESTIGATIONS OF GALACTIC CLUSTERS WITH ASSOCIATED CEPHEID VARIABLES. II. POLARIS CLUSTER AND ALPHA UMI
13. *Usenko I.A., Kniazev A.Yu., Mishenina T.V., Kovtyukh V.V., Miroshnichenko A.S., Turner D.G., Protsyuk Yu.I.* SPECTROSCOPIC INVESTIGATIONS OF GALACTIC CLUSTERS WITH ASSOCIATED CEPHEID VARIABLES. I. NGC 5662 AND V CEN
14. *Mishenina T., Usenko I., Kniazev A., Kovtyukh V.* REFINEMENT OF STATUS OF METAL-POOR STAR HD 6268



## **Tuesday, 14.08.2018**

**14:30 – 16:10 Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Convener** – *I.L.Andronov*

15. *Adigozalzade A.N.* A STUDY OF HERBIG AE BE STAR HD 179218: VARIABILITY IN HEI, SIII AND OI
16. *Andrych K.D., Andronov I.L.* MAVKA: STATISTICALLY OPTIMAL DETERMINATION OF EXTREMA
17. *Sergienko O.G., Panko E.A., Maleta D.V.* THE OBSERVATION V724 AQL IN THE KALINENKOV ASTRONOMICAL OBSERVATORY IN 2015 AND 2018
18. *Sergienko O.G., Guziy S.S., Panko E.A., Maleta D.V., Getmantsev A.A., Prihodko A.Y.* THE PHOTOMETRICAL V-R-I SYSTEM OF THE TELESCOPE ZTS-702 + SBIG CCD ST-7
19. *Panko E.A., Udovichenko S.N., Keir L.E., Sergienko O.G.* THE PHOTOMETRICAL V-R-I SYSTEM OF THE TELESCOPE AZT-3 WITH CCD ICX 429ALL
20. *Doikov D.N.* POSITRON SPECTROSCOPY OF YOUNG SUPERNOVA REMNANTS
21. *Verlyuk I.A.* SMALL-SCALE ACTIVITY OF THE FLARE STAR YZ CMI

**16:10 – 16:30 Coffee break**

**16:30 – 18:00 Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Convener** – *I.L.Andronov*

22. *Breus V.V., Andronov I.L., Dubovsky P., Petrik K., Zola S., Hegedus T.* IMPROVED PARAMETERS OF NEWLY DISCOVERED SHORT-PERIOD BINARIES
23. *Breus V.V., Petrik K., Zola S.* NEW RESULTS OF THE LONG-TERM MONITORING OF THE INTERMEDIATE POLAR V2306 CYGNI
24. *Kozytska K.O., Andronov I.L.* DEPENDENCE OF THE PRECESSION PERIOD OF EXOPLANETS IN BINARY STELLAR SYSTEMS ON INITIAL PARAMETERS
25. *Tvardovskyi D.E., Marsakova V.I., Andronov I.L., Shakun L.S.* ORBITAL ELEMENTS OF THE THIRD COMPONENTS IN THE SHORT-PERIOD BINARIES ZZ CAS, BF VIR, AR LAC AND CC HER
26. *Udovichenko S.N.* ON THE IRREGULAR VARIATIONS IN THE LIGHT CURVES OF RY VUL
27. *Chinarova L.L., Andronov I.L.* ”RUNNING SINE” ANALYSIS OF SYMBIOTIC, SEMI-REGULAR AND CATAclysmic VARIABLES
28. *Cook L.M., Andronov I.L.* OBSERVATIONS OF V1028 CYGNUS DURING ITS JULY 2018 SUPEROUTBURST

### **POSTERS**

29. *Gorbaneva T.I., Mishenina T.V.* HAFNIUM ABUNDANCES IN GALACTIC DISC FGK DWARFS
30. *Nazarenko V.V.* ON- AND OFF- STATE GENERATIONS IN THE CASE OF THE LOW MASS ACCRETION RATE ACCRETION DISK

## SUBSECTION “ASTROINFORMATICS”

**Friday, 17.08.2018**

**09:30 – 11:10 Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Convener** – *I.B.Vavilova*

1. *Akhmetov V.S., Fedorov P.N.* GAIA DR2 – FIRST RESULTS OF ASTROMETRIC ANALYSIS
2. *Dmytrenko A.M., Akhmetov V.S.* MODERN STATISTICAL APPROACH TO THE ASTROMETRIC DATA FOR REVEALING OF STELLAR DENSITY INCREASE IN THE GAIA DR2 DATA
3. *Protsyuk Yu.I., Kovylianska O.E., Protsyuk S.V.* CATALOGUE OF STARS PROPER MOTIONS IN +65°—+90° ZONE BY USING IMAGES FROM THE UKRVO ASTROPLATE ARCHIVE
4. *Shlyapnikov A.A.* GENERAL CATALOG OF STARS WITH SOLAR TYPE ACTIVITY
5. *Kashuba S., Tsvetkov M., Golovnia V., Pakuliak L., Vavilova I., Bazyey N.* THE SIMEIZ ASTROPLATE CATALOGUE OF THE ODESSA ASTROPHOTONEGATIVE COLLECTION: DIGITIZATION AND DATABASES
6. *Gorbunov M.A., Gorbachev M.A., Moskvyn V.V., Logachev K.V., Shlyapnikov A.A.* THE PROJECT OF PROTOTYPE INTERACTIVE DATABASE FOR VARIABLE STARS OBSERVED AT THE CRIMEAN ASTROPHYSICAL OBSERVATORY
7. *Maigurova N.V., Bondarchuk L.E., Protsyuk Yu.I.* RESULTS OF THE PROCESSING THE SELECTED WDS MULTIPLE STAR SYSTEMS
8. *Khlamov S.V., Savanevych V.E., Briukhovetskyi O.B., Dikov E.N., Vavilova I.B., Trunova T.O.* DEVELOPMENT AND IMPROVEMENTS OF COMPUTATIONAL METHODS IMPLEMENTED TO COLITEC SOFTWARE

**11:10 – 11:30 Coffee break**

**11:30 – 13:00 Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Convener** – *V.S.Akhmetov*

9. *Shatokhina S.V., Relke H., Yuldoshev Q., Andruk V.M., Protsyuk Yu.I., Muminov M.* ASTEROID’S SEARCH RESULTS AT THE KITAB PART OF THE NORTHERN SKY SURVEY PROJECT
10. *Eglitis I.* ASTEROIDS EXPLORATION WITH BALDONE SCHMIDT TELESCOPE (10 min)
11. *Maigurova N.V., Pomazan A.V., Shulga O.V.* HIGH-PRECISION FOLLOW-UP OBSERVATIONS OF NEAR-EARTH OBJECTS
12. *Yizhakevych O.M., Andruk V.M., Yuldoshev Q., Pakuliak L.K., Muminov M.M.* THE FIRST RESULTS OF PROCESSING THE PHOTOGRAPHIC OBSERVATIONS OF THE SOLAR SYSTEM BODIES BASED ON THE THE GLASS COLLECTION OF THE ULUGH BEG ASTRONOMICAL INSTITUTE
13. *Yizhakevych O.M., Mullo-Abdolov A.Sh., Relke H.V., Kokhirova G.I., Pakuliak L.K., Andruk V.M.* FIRST RESULTS OF THE SEARCHING OF ASTEROIDS BASED ON THE DATA OF FON-DUSHANBE PROCESSED PLATES
14. *Protsyuk Yu.I., Shukhratov Sh.Sh., Kovalchuk O.M., Muminov M.M., Yuldoshev Q.H., Abdurakhimov R.R., Andruk V.M.* RESULTS OF THE PROCESSING OF CCD OBSERVATIONS OF THE SELECTED OPEN CLUSTERS AT THE MAIDANAK OBSERVATORY
15. *Protsyuk Yu.I., Kovalchuk O.M.* ANALYSIS OF THE CCD OBSERVATIONS OF OPEN CLUSTERS TO IMPROVE THE ACCURACY OF ASTROMETRIC PROCESSING
16. *Akhmetov V.S., Khlamov S.V., Andruk V.M., Protsyuk Yu.I.* ANALYSIS OF STAR’S EQUATORIAL COORDINATES AND B-MAGNITUDES OF THE FON PROJECT
17. *Vavilova I.B., Babyk Iu.V.* NEW APPROACH FOR ANALYSIS OF THE X-RAY DATA IN CORES OF GALAXY CLUSTER

### POSTERS

18. *Eglitis I., Eglite V., Andruk V., Protsyuk Yu., Protsyuk S., Kovylianska O.* BALDONE 1.2M TELESCOPE ASTROPLATE ARCHIVE - HIDDEN RESERVES OF THE FON PROJECT
19. *Mullo-Abdolov A., Relke H., Kokhirova G., Yuldoshev Q., Protsyuk Yu., Andruk V.* PROGRESS IN THE REALIZATION OF THE PROJECT “FON-DUSHANBE CATALOGUE”
20. *Yizhakevych O.M., Kazantseva L.V., Relke H., Mullo-Abdolov A.Sh., Yuldoshev Q.H., Shatokhina S.V., Golovnia V.V., Andruk V.M.* ANALYSIS OF ACCURACY OF ASTEROID COORDINATES FROM DIGITIZED OBSERVATIONS OF THE PROJECT FON-KIEV, FON-KITAB, FON-DUSHANBE

# RADIOASTRONOMY

**15-16.08.2018**

**14:30 – 18:00 Section session** (Conference Room in “Chernomorka”, 1 floor)

**Conveners** – O.M.Ulyanov, O.A.Litvinenko

**16.10 – 16.30 Coffee break**

1. *Antyufeyev O., Shulga V., Zinchenko I., Patoka O.* LOW-VELOCITY PART OF MOLECULAR OUTFLOW IN 17233-3606
2. *Kravtsov I.P., Zakharenko V.V., Vasyliieva I.Y., Ulyanov O.M., Shevtsova A.I., Skoryk A.O.* SURVEY OF THE NORTHERN SKY IN ORDER TO FIND SPORADIC RADIO EMISSION SOURCES IN DECAMETER WAVE RANGE. RESULTS
3. *Ulyanov O.M., Reznichenko O.M., Zakharenko V.V., Prisiazhnii V.I., Korolev A.M., Antyufeyev O.V., Poihalo V.A., Voytyuk V.V., Chmil V.M., Patoka O.M., Udovenko A.P.* THE RT-32 CREATING PROJECT ON THE BASE OF MARK-4B ANTENNA SYSTEM
4. *Miroshnichenko A.* ESTIMATES OF BLACK HOLE MASSES FOR SOURCES WITH STEEP RADIO SPECTRA
5. *Shepelev V.A., Melnik V. N., Vashchishin R.V.* INTERFEROMETRIC OBSERVATIONS OF THE QUIET SUN RADIOEMISSION IN THE FREQUENCY RANGE OF 8 - 32 MHz
6. *Sobitniak L.I., Ryabov M.I., Panishko S.K.* PECULIARITIES OF THE FLUXES VARIATION OF POWERFUL COSMIC RADIO SOURCES BY OBSERVATIONS AT RT "URAN-4" UNDER VARIOUS SPACE WEATHER CONDITIONS
7. *Ulyanov O.M., Shevtsova A.I., Skoryk A.O.* POLARIZATION OF FINE STRUCTURE OF PULSAR RADIO EMISSION AT LOW FREQUENCIES
8. *Sukharev A.L., Bezrukovs V.V., Bleiders M.Y., Orbidans A.A., Ryabov M.I.* PRELIMINARY RESULTS OF STUDY INTRA-DAY VARIABILITY OF EXTRAGALACTIC RADIO SOURCES ON RADIO TELESCOPES OF THE VENTSPILS RADIO ASTRONOMY CENTER, LATVIA
9. *Tsvyk N.O.* ON THE INFLUENCE OF MHD TURBULENCE ON THE STRUCTURE OF THE RADIOGALAXY LOBES
10. *Sobitnyak L.I., Sukharev A.L., Orlyuk M.I., Ryabov M.I., Romenez A.A.* SHORT-PERIODIC GEOMAGNETIC VARIATIONS IN REGION OF THE ODESSA MAGNETIC ANOMALY AND THEIR CONNECTION WITH GEOMAGNETIC STORMS
11. *Stepkin S.V., Vasylykivskiy Y.V., Konovalenko O.O.* THE MOST LOW-FREQUENCY SPECTRAL LINES DETECTED IN THE INTERSTELLAR MEDIUM BY RADIO ASTRONOMICAL METHODS
12. *Sukharev A.L., Ryabov M.I.* INVESTIGATION RELATIONSHIP AND VARIABILITY PROPERTIES IN OPTICAL AND RADIO RANGES FOR LACERTIDES OJ 287 AND BL LAC
13. *Ryabov M.I., Gorbunov A.A., Sukharev A.L.* ON THE PROGRAM FOR OBSERVING VARIATIONS IN THE CAS A FLUX IN THE INTERVAL FROM MILLIMETERS TO DECAMETER WAVELENGTHS
14. *Panishko S.K., Lytvynenko O.A.* PECULIARITIES IN THE IONOSPHERE SCINTILLATION SPECTRUM SLOPE BEHAVIOR ON THE OBSERVATIONS OF THE COSMIC RADIO SOURCES AT THE DECAMETER WAVE RANGE
15. *Ulyanov O.M., Zakharenko V.V., Yerin S.N., Shevtsova A.I., Bubnov I.N., Skoryk A.O., Tokarsky P.L., Sidorchuk M.A., Lisachenko V.M.* CALIBRATION OF LARGE PHASED ANTENNA ARRAYS
16. *Galanin V.V., Lytvynenko O.A., Derevyagin V.G., Kravetz R.O.* RADIO TELESCOPE URAN-4 AND THE PROBLEM OF RADIO INTERFERENCE
17. *Lytvynenko O.A., Lytvynenko I.O., Kravetz R.O.* ON THE USE OF GALAXY NOISE FOR THE CALIBRATION OF RADIOTELESCOPES OF THE DECAMETER WAVELENGTH RANGE
18. *Lytvynenko O.A., Derevyagin V. G., Lytvynenko I.O.* FEATURES OF APPLICATION OF SDR RECEIVERS WITH USB INTERFACE FOR RADIO ASTRONOMICAL OBSERVATION
19. *Orlov V.V., Galanin V.V., Lytvynenko O.A.* SPATIAL MULTIPLICATIVE PROCESSING OF MULTI-FREQUENCY SIGNALS
20. *Marenkov V.I.* BRAKE RADIO EMISSION OF HETEROGENEOUS PLASMA FORMATIONS IN THE ATMOSPHERE OF EARTH AND SPACE AND PHYSICAL GROUNDS OF HIS USE FOR TELEDIAGNOSTICS OF RADIATING PLASMA OBJECTS

## POSTERS

21. *Podgornyy G.S., Shepelev V.A.* RENOVATION OF CONTROL SYSTEM OF THE URAN-1 RADIO TELESCOPE
22. *Samodurov V.A., Pavlov S.Yu., Tyurin V.A.* DEVELOPMENT OF DATA PROCESSING TECHNIQUES FOR DAILY SURVEY AT 110 MHz BY BSA LPI USING HIGH-PERFORMANCE COMPUTING METHODS

# SUN, SOLAR ACTIVITY AND ASTROBIOLOGY

**Friday, 17.08.2018**

**14:30 – 18:00 Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Conveners** – *V.M.Efimenko, M.I.Ryabov*

**16:10 – 16:30 Coffee break**

1. *Efimenko V.M., Lozitsky V.G.* LONG-TERM AND SHORT-TERM OSCILLATIONS OF AREAS OF GROUPS OF SUNSPOTS IN 12-24 CYCLES OF ACTIVITY
2. *Koval'chuk M.M., Baran O.A., Stodilka M.I., Hirnyak M.B.* ANALYSIS OF SPATIO-TEMPORAL DYNAMICS OF TWO POPULATIONS OF SUNSPOTS IN THE 22-YEAR MAGNETIC CYCLE OF SOLAR ACTIVITY
3. *Lozitska N.* CHARACTERISTICS OF SUNSPOTS GROUPS PRODUCING PROTON FLARES
4. *Isaeva E.A.* THE RELATIONSHIP OF THE SCR WITH PARAMETERS OF RADIO BURSTS AND CME
5. *Isaeva E.A.* NEW APPROXIMATION OF THE ENERGY SPECTRUM OF PROTON SCR
6. *Орлюк М.И., Онищук И.И., Роменец А.А., Марченко А.В., Яцевский П.И.* МАГНИТНЫЕ И РАДОНОВЫЕ АНОМАЛИИ ТЕРРИТОРИИ УКРАИНЫ И Г. КИЕВА
7. *Koval'chuk M.M., Baran O.A., Stodilka M.I., Hirnyak M.B.* FORECAST OF THE PERTURBATIONS OF THE EARTH'S MAGNETIC FIELD DUE TO THE SOLAR ACTIVITY
8. *Beglaryan M.E., Zelentsova T.N.* AXION MECHANISM OF SOLAR LUMINOSITY VARIATIONS
9. *Shykhovtsev Y.S.* NUMERICAL MODELLING OF INSTRUMENTAL CONTOUR WITH RESPECT TO IRREVERSIBLE PROCESSES
10. *Perov S.P.* EXPLORATION OF ION-AEROSOL PLASMA BY AIR-BORN INSTRUMENTATIONS IN THE LOWER IONOSPHERE
11. *Perov S.P.* PUBLIUS VIRGIL MARON AND ALEKSANDER LEONIDOVICH CHIZHEVSKIY
12. *Perov S.P., Perov A.S.* SYNCHRONIZATION IN THE EARTH-LUNA-SUN SYSTEM
13. *Poghosyan S.S.* THE ADVANTAGES OF THE ASTROPHYSICAL MODEL OF THE SUN WITH A CENTRAL BLACK HOLE
14. *Kzyurov Yu.V.* FLUCTUATIONS IN PLASMA DENSITY NEAR TEMPERATURE MINIMUM OF SOLAR ATMOSPHERE

## SOLAR SYSTEM

**Wednesday, 15.08.2018**

**14:30 – 16:10 Section session** (Conference Room in “Chernomorka”, 1 floor)

**Convener** – N.I.Koshkin

1. *Kaliuzhnyi M., Bushuev F., Mazhaev O., Shulga O., Shakun L., Bezrukovs V., Reznichenko O., Moskalenko S., Malynovskyi Ye.* EXTERNAL COMPARISON SATELLITE POSITIONS OBTAINED BY THE NETWORK OF PASSIVE CORRELATION RANGING OF GEOSTATIONARY TELECOMMUNICATION SATELLITES
2. *Kaliuzhnyi M., Bushuev F., Khalaley M., Kryuchkovskiy V., Kulichenko M., Shulga O.* DOPPLER STATION FOR ORBITAL TRACKING OF LOW-ORBIT SPACECRAFTS BY THEIR RADIO BEACON SIGNALS
3. *Shakun L., Shulga A., Koshkin N., Kashuba V., Kaliuzhniy N., Kryuchkovskiy V., Kudak V., Perig V., Romanyuk Ya., Martynyuk-Lototsky K., Marsakova V.* ORBIT ESTIMATION OF GEOSTATIONARY SATELLITES AND ANALYSIS OF RANDOM AND SYSTEMATIC MEASUREMENT ERRORS OF THE UAMOS OBSERVATION STATION USING ASTRODYNAMICS LIBRARY KORBESTLIB
4. *Kozhukhov O.M., Rishchenko S.V., Dementiev T.A., Yepishev V.P., Motrunich I.I., Noybauer I.F., Perig V.M., Yanchevskiy S.L., Kozhukhov D.M., Piskun O.M.* STATE IDENTIFICATION OF CUBESAT-TYPE SATELLITES BY OPTICAL OBSERVATIONS (ON THE EXAMPLE OF ARKYD 6A SPACECRAFT)

**16:10 – 16:30 Coffee break**

**16:30 – 18:00 Section session** (Conference Room in “Chernomorka”, 1 floor)

**Convener** – O.V.Shulga

5. *Koshkin N., Shakun L., Korobeinikova E., Strakhova S., Melikyants S., Terpan S., Dragomiretsky V., Golubovskaya T., Ryabov A.* MONITORING OF SPACE DEBRIS ROTATION BASED ON PHOTOMETRY
6. *Sidorenkov N.S.* THE 206-DAY LUNAR CYCLE AND SPRING TIDES IN THE ATMOSPHERE
7. *Troianskyi V., Breiter S.* EFFECT YARKOVSKY-SCHACH IN ASTEROID SYSTEMS
8. *Kulichenko M.O., Shulga O.V.* RADIANTS AND ORBITAL DATA DISTRIBUTION OF METEORS OBSERVED IN MYKOLAIV
9. *Komendant V.H.* PERIODS OF EXTREME DRAG OF ARTIFICIAL SATELLITES IN CONDITIONS OF HIGH SOLAR AND GEOMAGNETIC ACTIVITY IN 23-24 SOLAR CYCLES

**Thursday, 16.08.2018**

**14:30 – 16:10 Section session** (Conference Room in “Chernomorka”, 2 floor)

**Convener** – V.V. Kleshchonok

10. *Troianskyi V., Oszkiewicz D., Kwiatkowski T.* V-TYPE ASTEROIDS
11. *Nevodovsky P.V., Morozhenko A.V., Vidmachenko A.P.* STUDY OF THE STRATOSPHERIC AEROSOL OF THE EARTH USING ULTRAVIOLET POLARIMETRY
12. *Luk'yanyk I., Ivanova O., Kolokolova L., Das H.S., Afanasiev V.* INVESTIGATION OF DUST ENVIRONMENT OF DISTANT COMET C/2014 A4 (SONEAR)
13. *Velichko S.F., Andreev M.V.* PHOTOMETRY OF COMET C/2009 P1 (GARRADD) BEFORE AND AFTER PERIHELION
14. *Slyusarev I., Glezina D. and Belskaya I.* POSSIBLE REASONS OF DIFFERENCES IN PROPERTIES OF JUPITER

**16:10 – 16:30** *Coffee break*

**16:30 – 18:00** **Section session** (*Conference Room in “Chernomorka”, 2 floor*)

**Convener** – *I.V. Luk'yanyk*

15. *Kleshchonok V.* INTERPETATION OF COMET JET STRUCTURE
16. *Kozak P.M.* RESULTS OF TESTING MULTI-INSTRUMENTAL AUTOMATED MOBILE COMPLEX FOR OBSERVATIONS OF ANOMALOUS METEORS
17. *Konovalova N.A., Gorbaney Yu.M., Davrugov N.H.* THE EXISTENCE OF THE GROUPS OF METEORITE-PRODUCING BOLIDES AND METEORITES IN COMETARY ORBITS
18. *Troianskyi V., Kashuba V., Krugly Yu.* PHOTOMETRY OF SELECTED ASTEROIDS ON THE OMT-800 TELESCOPE
19. *Ponomarenko V.A., Simon A.O., Vasylenko V.V., Baransky A.R.* ANALYSIS OF OPTICAL MONITORING OF FIVE ACTIVE GALACTIC NUCLEI

**POSTERS:**

20. *Vidmachenko A.P.* JUPITER'S NORTHERN TROPICAL ZONE BECAME DARKEN AFTER THE PASSING OF APHELION IN 2016
21. *Vidmachenko A.P., Nevodovsky P.V., Morozhenko A.V.* POLARIMETRIC MEASUREMENTS OF THE SKY IN ULTRAVIOLET SPECTRAL REGION
22. *Ponomarenko V.A., Churyumov K.I., Kleshchonok V.V.* LUMINESCENT COMETARY CONTINUUM AND OTHER PHYSICAL PARAMETERS OF GAS AND DUST COMETARY ATMOSPHERES
23. *Steklov A.F., Zhilyaev B.E., Vidmachenko A.P.* SPACE INVASION. AS IS.

ATTACHED SECTION "UKRAINIAN PLANETARIUM ASSOCIATION"

**Monday, 13.08.2018**

**14:30 – 16:10 Section session** (*Conference Room in "Chernomorka", 3 floor*)

**Convener** – Железняк Г.В.

1. *Захожсай В.А.* О РАБОТЕ ПЛАНЕТАРИЕВ И АСТРОНОМИЧЕСКОМ ОБРАЗОВАНИИ В УКРАИНЕ
2. *Кушерец В.И.* ПЕРСПЕКТИВЫ РАЗВИТИЯ ПЛАНЕТАРИЕВ В СТРУКТУРЕ ОБЩЕСТВА «ЗНАНИЕ» УКРАИНЫ
3. *Железняк Г.В.* О КОНФЕРЕНЦИИ МЕЖДУНАРОДНОГО ОБЩЕСТВА ПЛАНЕТАРИЕВ В 2018 ГОДУ И ТЕНДЕНЦИЯХ РАЗВИТИЯ АСТРОНОМИЧЕСКОГО ОБРАЗОВАНИЯ (ТУЛУЗА, ФРАНЦИЯ)
4. *Рябов М.И.* О СОЗДАНИИ ОБРАЗОВАТЕЛЬНОГО ЦЕНТРА "ОДЕССКИЙ УНИВЕРСИТЕТСКИЙ ПЛАНЕТАРИЙ"
5. *Кузьменков С.Г.* АКТУАЛЬНЫЕ ПРОБЛЕМЫ ОБЩЕГО АСТРОНОМИЧЕСКОГО ОБРАЗОВАНИЯ

**16:10 – 16:30 Coffee break**

**16:30 – 18:00 Section session** (*Conference Room in "Chernomorka", 3 floor*)

**Convener** – Захожсай В.А.

6. *Железняк Г.В.* О ПЕРСПЕКТИВАХ МЕЖДУНАРОДНОГО СОТРУДНИЧЕСТВА ПЛАНЕТАРИЕВ УКРАИНЫ
7. *Мартинюк М.Т., Ткаченко І.А.* НАВЧАЛЬНО-ВИХОВНИЙ ЦЕНТР "ПЛАНЕТАРИЙ" ЯК ЗАСІБ АСТРОНОМІЧНОЇ ОСВІТИ МОЛОДІ
8. *Лесная О.* О РАБОТЕ ДНЕПРОПЕТРОВСКОГО ПЛАНЕТАРИЯ
9. *Творун В.Т.* О РАБОТЕ ОБОРУДОВАНИЯ ДЛЯ ЗВЕЗДНЫХ ЗАЛОВ
10. *Ломака Е.* ОПЫТ ЭКСКУРСИОННОЙ РАБОТЫ В ХАРЬКОВСКОМ ПЛАНЕТАРИИ
11. *Михеев Б.В.* ВИННИЦКИЙ ПЛАНЕТАРИЙ НА СОВРЕМЕННОМ ЭТАПЕ

SUBSECTION “PHYSICAL AND ASTRONOMICAL EDUCATION WITHIN THE  
FRAMEWORK OF THE MINOR ACADEMY OF SCIENCES OF UKRAINE”

**Wednesday, 15.08.2018**

**14:30 – 16:10 Section session** (*Conference Room in “Chernomorka”, 3 floor*)

**Convener** – *Андронов І.Л.*

1. *Шиховцева Л.Є., Шиховцев Ю.С., Черкес Н.Б.* ДЕЯКІ НАПРЯМИ РОБОТИ НАВЧАЛЬНО-ЛАБОРАТОРНОГО КОМПЛЕКСУ «МАНЛАБ» НЦ «МАНУ»
2. *Підгорний О.В.* ВИКОРИСТАННЯ МОБІЛЬНИХ ДОДАТКІВ У ВИВЧЕННІ ШКІЛЬНОЇ АСТРОНОМІЇ
3. *Баранский А.* О ВОЗРОЖДЕНИИ ЖУРНАЛА «НАШЕ НЕБО»
4. *Андронов І.Л.* СЕКЦІЯ АСТРОНОМІЇ ОДЕСЬКОГО ВІДДІЛЕННЯ МАЛОЇ АКАДЕМІЇ НАУК: ПОПУЛЯРИЗАЦІЯ ТА ПРОФОРІЄНТАЦІЯ
5. *Marsakova V.I.* VARIABLE STARS OBSERVING AS AN EFFECTIVE METHOD OF GENERAL TRAINING FOR YOUNG ASTRONOMERS
6. *Кудашикіна Л.С., Андронов І.Л.* КОМП’ЮТЕРНІ ПРОГРАМИ У ВИКЛАДАННІ КУРСІВ «ЗАГАЛЬНА АСТРОНОМІЯ» ТА «МОРЕХІДНА АСТРОНОМІЯ»

**16:10 – 16:30 Coffee break**

**16:30 – 18:00 Section session** (*Conference Room in “Chernomorka”, 3 floor*)

**Convener** – *Олейнік В.П.*

7. *Козицька К.О.* ЕКСКУРСІЯ НА ВЕЛИКИЙ АДРОННИЙ КОЛАЙДЕР У ЖЕНЕВІ ПРИЗЕРІВ ВСЕУКРАЇНЬКОГО КОНКУРСУ МАН З АСТРОНОМІЇ ТА ФІЗИКИ
8. *Хмарська А.А.* КОНКУРС «МАН – ЮНІОР ДОСЛІДНИК 2018» ТА ДОСЛІДЖЕННЯ СОНЯЧНО-ЗЕМНИХ ЗВ’ЯЗКІВ
9. *Олейнік В.П., Завальнюк В.В.* ФОРМАТ ОСВІТНЬОЇ ГРИ У ЛІТНІЙ ШКОЛІ МАН: ДОСЯГНЕННЯ ТА ПЕРСПЕКТИВИ
10. *Андрич К.Д.* ПЕРШИЙ ДОСВІД КЕРУВАННЯ ГРУПОЮ НА ВСЕУКРАЇНСЬКІЙ АСТРОНОМІЧНІЙ ОЛІМПІАДІ ТА КОНСУЛЬТУВАННЯ ЮНИХ АСТРОНОМІВ НА ЛІТНІЙ ШКОЛІ МАН
11. *Марченко С.В.* ДОСЛІДЖЕННЯ ВПЛИВУ СЛАБКИХ ПОЛІВ НА РОСЛИНИ У РОБОТАХ МАН
12. *Завальнюк В.В.* ЕФЕКТ «СПОВІЛЬНЕНОЇ ЗЙОМКИ» ЯК ІНСТРУМЕНТ ДОСЛІДЖЕННЯ В РОБОТАХ МАН