

TARAS SHEVCHENKO NATIONAL UNIVERSITY OF KYIV  
DEPARTMENT OF ASTRONOMY AND SPACE PHYSICS

19th Young Scientists' Conference  
on Astronomy and Space Physics  
Abstracts

Kyiv, 2012

**19th Young Scientists' Conference on Astronomy and Space Physics**  
**April 23-28, 2012**  
**Kyiv, Ukraine**

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**Preface**

This year Young Scientists' Conference on Astronomy and Space Physics is held for the nineteenth time. We all have been looking forward to the annual meeting of astronomers at Taras Shevchenko National University of Kyiv. Now it has friendly opened its doors for participants from all over the world.

Young Scientists' Conference has a long history. The first meeting was organized by Physics faculty of the Taras Shevchenko National University of Kyiv as a students' conference in 1994. Since 1996 our conference has welcomed young researchers from other universities and scientific institutions. During 1994-2011 participants from Ukraine, Russia, Poland, France, Germany, Spain, Sweden, Libya, Egypt, Japan, Finland, Turkey, China, Slovakia, Armenia, USA, Romania and other countries participated in Young Scientists' Conference.

The conference is aimed at strengthen the position of astronomy and promote space physics research. The lectures and reports presented by the participants traditionally reflect modern trends and actual problems of the science, the sessions facilitate informational exchange about the latest innovations and achievements.

On behalf of the organizing committee we would like to express our gratitude to the invited lecturers and participants for contributing lectures and reports. We are especially grateful to Prof. V. M. Ivchenko for the help in conference organization.

*Anatolii Koval and  
Local Organizing Committee*

# PROGRAMME

Monday, April 23

09.00-12.00 - Registration  
12.30-13.00 - Official opening

## Section 'Exoplanets'

13.00-13.40 **Eduardo Martin** (*Centro de Astrobiología, Torrejón de Ardoz, Spain*) Planet formation in the context of galaxy and star formation (**invited**)

13.40-14.20 **Michael Mishchenko** (*NASA Goddard Institute for Space Studies, New York, USA*) Opposition optical phenomena in planetary astrophysics (**invited**)

14.20-14.50 tea-break

14.50-15.05 **Olga Zakhochay** (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) Circumstellar disks SED in dependence of system parameters (**12+3**)

15.05-15.20 **Kateryna Frantseva**, N. M. Kostogryz, T. M. Yakobchuk (*Taras Shevchenko National University, Kyiv, Ukraine*) Polarimetric effects simulation for HD 189733 (**12+3**)

15.20-15.35 **Yana Shliakhetskaya**, Yu. Kuznyetsova. (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Spectral studies of the transit system HD 189733 (**12+3**)

15.35-15.50 **Artem Burdanov**, V. V. Krushinsky (*Ural Federal University, Yekaterinburg, Russia*) A technique for high-precision CCD photometry of transiting extrasolar planets with the MASTER-II-Ural telescope of the Kourovka astronomical observatory (**12+3**)

15.50-16.05 **Avril Day-Jones**, F. Marocco, D. J. Pinfield et al. (*Universidad de Chile, Santiago, Chile*) The sub-stellar birthrate from the UKIDSS survey (**12+3**)

16.05-16.35 tea-break

## Section 'Solar System'

16.35-16.50 **Damian Puchalski**, G. Maciejewski (*Toruń Centre for Astronomy of Nicolaus Copernicus University, Toruń, Poland*) Transit of Venus and determination of the astronomical unit (**12+3**)

16.50-17.05 **Ivan Slyusarev**, V. G. Shevchenko, I. N. Belskaya, Yu. N. Krugly, V. G. Chiorny (*Astronomical Institute of Kharkiv V. N. Karazin National University, Kharkiv, Ukraine*) Revising of Jupiter Trojans albedos, sizes and densities (**12+3**)

17.05-17.20 **Irina Tielieusova**, D. F. Lupishko (*Astronomical Institute, Kharkiv V.N. Karazin National University, Kharkiv, Ukraine*) Influence of the YORP-effect on axis rotation of near-earth asteroids (**12+3**)

17.20-17.35 **Sergii Zaitsev**, N. Kiselev, V. Rosenbush, F. Velicko, S. Kolesnikov, K. Antonyuk (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) Polarimetric observations of the Galilean satellites near opposition in 2011 (**12+3**)

17.35-17.40 **Sandro Cervantes**, C. Gay (*Center of Atmosphere Sciences, National Autonomous University, Mexico, Mexico*) Initial Terraforming of Mars: first global and latitudinal temperature and pressure profiles from observational data (**poster**)

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- 17.40-17.45 Oleksiy Matsiaka**, Yu. G. Kuznetzova (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Study of long- and short-periodic variations in Uranus spectra (**poster**)
- 17.45-17.50 Edyta Popławska** (*Toruń Centre for Astronomy of Nicolaus Copernicus University, Toruń, Poland*) The chemical composition of Titan's atmosphere (**poster**)
- 17.50-17.55 Ait Moulay Larbi El Mamoun**, Z. Benkhaldoun, A. Daassou (*Université Cadi Ayyad, Marrakech, Morocco*) Observation of impact flashes on the Moon (**poster**)
- 17.55-18.00 Andrei Klianchin**, Yu. Kuznyetsova, A. Vidmachenko, M. Andreev (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) Spectral characteristics of Jupiter's satellite Europa in the moment of eastern and western elongations (**poster**)
- 18.00-18.05 Olena Shubina**, P. P. Korsun (*Taras Shevchenko National University, Kyiv, Ukraine*) Low-resolution spectrum of comet C/2004Q2(Machholz) (**poster**)
- 18.05-18.10 Vasily Ponomarenko**, K. I. Churyumov, V. V. Kleshchonok, O. R. Baransky (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Fluorescent cometary continuum in spectra of comets 81P/Wild 2, 103P/Hartley 2, C/2009 K5 (McNaught) and some physical parameters of these comets (**poster**)
- 18.30-21.00** Excursion to the Main Astronomical Observatory of NAS of Ukraine

**Tuesday, April 24**

**Section 'Extragalactic Astrophysics'**

**09.00-09.30** morning coffee

- 09.30-09.45 Igor Zinchenko**, L. S. Pilyugin (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) Evolution of oxygen and nitrogen abundances in SDSS galaxies (**12+3**)
- 09.45-10.00 Kateryna Agiienko** (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) Nebular HeII  $\lambda 4686$  in Wolf-Rayet galaxies from SDSS (**12+3**)
- 10.00-10.15 Solohery Randriamampandry** (*University of the Western Cape & South African Astronomical Observatory, Cape Town, South Africa*) Multi-wavelength studies of star forming galaxies in the X-ray luminous clusters at  $z \sim 0.5$  (**12+3**)
- 10.15-10.30 Ia Kochiashvili**, J. Fynbo, W. Freudling, P. Møller (*DARK Cosmology Centre, Copenhagen, Denmark*) On the nature of interlopers in deep narrow-band searches for  $z > 7$  galaxies (**12+3**)
- 10.30-10.35 Anahit Vardazaryan** (*Yerevan State University, Yerevan, Armenia*) Nature of intergalactic supernovae (**poster**)
- 10.35-10.40 Arpine Karapetyan** (*Yerevan State University, Yerevan, Armenia*) Study of the nature of supernova progenitors through the metallicities of their host galaxies (**poster**)
- 10.40-10.45 Ani Vardanyan**, V. Adibekyan (*Byurakan Astrophysical Observatory, Byurakan, Armenia*) The chemical abundance gradient and star formation rate in the galaxy M101 (**poster**)

## Programme

- 10.45-10.50 **Knarik Khachatryan**, V. Adibekyan (*Byurakan Astrophysical Observatory, Byurakan, Armenia*) *The spectral investigation of the WR galaxy PGC 97542 (poster)*
- 10.50-11.20 **tea-break**
- 11.20-12.00 **Ryszard Szczerba** (*Nicolaus Copernicus Astronomical Center, Toruń, Poland*) *Dust and formation of fullerenes in Milky Way (invited)*
- 12.00-12.15 **Ievgen Vovk**, A. Neronov (*ISDC Data Centre for Astrophysics, Versoix, Switzerland*) *Fast GeV variability of blazars: implications for emission region sites (12+3)*
- 12.15-12.30 **Elzbieta Kuligowska** (*Astronomical Observatory of Jagiellonian University, Kraków, Poland*) *Studying the FR-II giant radio galaxies with modified KDA model (12+3)*
- 12.30-12.45 **Daniela-Adriana Lacatus, Alin Razvan Paraschiv**, O. Tesileanu (*Research Center for Atomic Physics and Astrophysics, University of Bucharest, Magurele - Ilfov, Romania*) *Simulating peculiar X-shaped extragalactic radio sources (12+3)*
- 12.45-13.00 **Margaryta Sobolenko**, P. Berczik (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Post-Newtonian test simulations of the dynamical evolution of the super-massive black hole binaries (12+3)*
- 13.00-13.05 **Olena Torbaniuk**, G. Ivashchenko, O. Sergijenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Some spectral properties of the quasar UV bump (poster)*
- 13.05-13.10 **Agnieszka Kuzmicz**, J. Marek (*Astronomical Observatory of the Jagiellonian University, Kraków, Poland*) *Central black holes in giant radio quasars (poster)*
- 13.10-13.15 **Anatolij Vasylenko** (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Determination of parameters of the active nucleus in NGC 1194 galaxy (poster)*
- 13.15-13.20 **Nadiia Pulatova**, I. B. Vavilova (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) *General properties of AGN in pairs and isolated AGN from 2MIG Catalog (poster)*
- 13.20-13.25 **Tahmoures Toliat Kashani, Sarah Fazlollah Pour**, S. Arbabi-Bidgoli (*Ferdowsi University of Mashhad, Tehran, Iran*) *Extraction of the number density of galaxies in the GaBoDs data using the KSB method (poster)*

13.30-14.20 **lunch**

### Section 'Cosmology'

- 14.30-14.45 **Ganna Ivashchenko** (*Astronomical Observatory of Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Mean transmission and the transmission autocorrelation function of the Ly-alpha forest from SDSS DR7 (12+3)*
- 14.45-15.00 **Sergii Koval**, A. N. Alexandrov, V. I. Zhdanov (*National University of Kyiv-Mohyla Academy, Kyiv, Ukraine*) *Critical solutions and magnification of a gravitational lens near folds and cusps (12+3)*
- 15.00-15.15 **Olga Sergijenko**, B. Novosyadlyj (*Astronomical Observatory of Ivan Franko National University of Lviv, Lviv, Ukraine*) *Dark energy with barotropic equation of state: beyond the quintessential fields (12+3)*

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- 15.15-15.30 **Danylo Yerokhin**, O. A. Lemets (*A. I. Akhiezer Institute of Theoretical Physics, National Scientific Center "Kharkov Institute of Physics and Technology", Kharkiv, Ukraine*) Transient acceleration in the models with interacting holographic dark energy in fractal cosmology (12+3)
- 15.30-15.35 **Iurii Babyk**, A. Elyiv, O. Melnyk, V. Krivodubskij, I. Vavilova (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The hot diffuse gas in the X-ray galaxy clusters at  $0.01 < z < 1.4$  (poster)
- 15.35-15.40 **Olga Vasylenko**, G. Ivashchenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Angular clustering of photometrically classified quasar candidates from SDSS NBCKDE (poster)
- 15.40-15.45 **Natalia Arkhipova** (*Astro Space Center of Lebedev Physical Institute, Moscow, Russia*) Normalization constraints on  $r \equiv T/S$  in cosmological  $\Lambda$ MDM models (poster)
- 15.45-15.50 **Oleg Lemets**, D. A. Yerokhin (*A. I. Akhiezer Institute of Theoretical Physics, National Scientific Center "Kharkov Institute of Physics and Technology", Kharkiv, Ukraine*) Dark sector interaction in fractal cosmology (poster)
- 15.50-15.55 **Ali Azizi** (*Sanandaj Branch, Islamic Azad University, Sanandaj, Iran*) Gauge invariance of free "massless" spin - 3/2 fields in de Sitter space (poster)
- 15.55-16.15 tea-break
- Section 'Astronomical Equipment and Databases'**
- 16.15-16.30 **Anna Punanova**, V. V. Krushinsky (*B. N. Yeltsin Ural Federal University, Yekaterinburg, Russia*) Investigation of the fiber-fed echelle spectrograph at the 1.2-meter telescope in the Kourovskaya astronomical observatory (12+3)
- 16.30-16.45 **Ivan Syniavskiy**, Y. S. Ivanov (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) The Stokes polarimeter for a small telescope (12+3)
- 16.45-17.00 **Aleksander Kurek** (*Solaris Center Observatory, Opole, Poland*) Searching for supernovae Ia in SDSS galaxy spectra (12+3)
- 17.00-17.05 **Sergii Pokhvala**, B. E. Zhilyaev, V. M. Reshetnyk (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) High-speed multicolor photometry with a CMOS receivers (poster)
- 17.05-17.10 **Nikolay Pankov**, V. G. Shytov, N. F. Pankov, A. V. Belyaev (*Crimean Astrophysical Observatory, Nauchny, Crimea, Ukraine*) The new control system of ZTSh dome (poster)
- 17.10-17.15 **Andrew Simon** (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Possibility of spectral observations at the Lisnyky observational station of AO KNU (poster)
- 17.15-17.20 **Rouhollah Joveini, Mojtaba Taheri, Soroush Sotoudeh** (*Sharif University of Technology, Tehran, Iran*) Using THELI pipeline in order to reduce Abell 226 multi-band optical images (poster)
- 17.20-17.35 **Yuriy Fursiak** (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Creating an electronic version of the archive of spectral observations of the Sun, held at the coronagraph KG-2 of Scientific-Research Institute "Crimean Astrophysical Observatory" (12+3)

## Programme

- 17.35-17.40 Yuriy Fursiak**, A. A. Shlyapnikov (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) *On-line version of the catalog of observations of areas along the route of comet Liller (1988a)* (**poster**)
- 17.40-17.45 Andry Dolgov**, A. Shlyapnikov (*Taurida National V. I. Vernadsky University, Simferopol, Ukraine*) *Catalogue of over 100,000 objects in the field of  $10\times 10$  degrees with the center Right ascension 08h40m and Declination  $+16^{\circ} 10'$*  (**poster**)
- 17.45-17.50 Anastasiia Zolotukhina** (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) *The database of CCD-observations obtained at the Kyiv meridian axial circle* (**poster**)
- 18.00-22.00** Organ hall / opera hall / etc.

### Wednesday, April 25

#### Section 'Stellar Astrophysics'

- 09.00-09.30** morning coffee
- 09.30-09.45 Maxim Kuznetsov**, Ya. V. Pavlenko, M. C. Glvez-Ortiz (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) *Dust in atmospheres of M4 – M6 dwarfs* (**12+3**)
- 09.45-10.00 Alexandra Kalashnikova**, O. V. Maryeva (*South Federal University, Rostov-on-Don, Russia*) *Spectral study of HD 15570, HD 15629, HD 15558* (**12+3**)
- 10.00-10.15 Satenik Ghazaryan**, G. A. Alecian, H. A. Harutyunyan (*Byurakan Astrophysical Observatory, Byurakan, Armenia*) *On the question of detecting granulation signal in A and B star's CoRoT light curves* (**12+3**)
- 10.15-10.20 Kamal Kumar Tanti**, J. Roy, K. Duorah (*Gauhati University, Guwahati, India*) *Spectral energy distributions and age estimates of 40 massive young stellar objects* (**poster**)
- 10.20-10.25 Alexandr Savushkin**, A. A. Shlyapnikov (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) *CCD photometry of some areas around of M45* (**poster**)
- 10.25-10.30 Nikolay Pit** (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) *Physical parameters and variable stars in the open stellar cluster Berkeley 86* (**poster**)
- 10.30-10.35 Sergey Zubarev**, E. V. Shayapin, L. M. Martyushev (*Ural Federal University, Yekaterinburg, Russia*) *Statistical analysis of the thermophysical quantities of star clusters* (**poster**)
- 10.35-10.40 Iuliia Tsykaliuk**, V. Choliy (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Ogorodnikov – Milne model parameters for analysing of PPMXL catalogue* (**poster**)
- 10.40-10.45 Anna Medvedeva**, L. G. Lukyanov, S. A. Gasanov (*Sternberg Astronomical Institute, Moscow University, Moscow, Russia*) *The motion of stars in close binary systems with conservative mass exchange* (**poster**)
- 10.45-11.25 David Pinfield** (*University of Hertfordshire, Hatfield, UK*) *Understanding ultra-cool atmospheres - sub-stellar objects with temperatures from 300-2300K* (**invited**)
- 11.25-11.55** tea-break

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- 11.55-12.35 Nino Chkheidze** (*Ilia State University, Tbilisi, Georgia*) Anomalous pulsars and magnetars (**invited**)
- 12.35-12.50 Sviatoslav Smerechynskiy**, M. V. Vavruk, N. L. Tyshko (*Ivan Franko National University of Lviv, Lviv, Ukraine*) The inverse problem in the theory of degenerate dwarfs in the frame of two-phase model (**12+3**)
- 12.50-13.05 Vitaly Breus**, I. L. Andronov (*Odessa National Maritime University, Odessa, Ukraine*) Period variations of the intermediate polar EX Hya (**12+3**)
- 13.05-13.20 Maxim Gabdeev**, N. V. Borisov, V. L. Afanasiev, V. V. Shimanskiy (*Special Astrophysical Observatory of RAS, Nizhnij Arkhyz, Russia*) Study of the new polar USNO-A2.0 0825-18396733 in optical range (**12+3**)
- 13.20-13.25 Alexey Sosnovsky**, E. Pavlenko (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Cataclysmic variable Star IRXJ003828. Discovering the eclipse. Physical characteristic (**poster**)
- 13.25-13.30 Elena Nikitina**, I. F. Malov (*Pushchino Radio Astronomy Observatory, Pushchino, Russia*) The distribution of areas of radiation generation at the different frequencies in the pulsar magnetospheres (**poster**)
- 13.30-13.45 Anastasiya Boiko**, A. A. Konovalenko, V. L. Kolyadin, V. N. Melnik (*Institute of Radio Astronomy of NAS of Ukraine, Kharkiv, Ukraine*) Search of the radio emission from flare stars at decameter wavelengths (**12+3**)
- 13.45-14.00 Paulina Karczmarek** (*Toruń Centre for Astronomy of Nicolaus Copernicus University, Toruń, Poland*) Eclipsing Binary pulsating stars – new evolutionary channel to create RR Lyr-like pulsations (**12+3**)
- 14.00-14.15 Sergey Belan**, D. N. Shakhovskoi, V. I. Shenavrin (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Long-term photometric activity of RR Tau in visual and near-infrared (**12+3**)
- 14.15-14.30 Damian Jableka**, S. Zola, B. Zakrzewski (*Astronomical Observatory of Jagiellonian University, Kraków, Poland*) Period changes of the sample of chromospherically active eclipsing binaries (**12+3**)
- 14.30-14.45 Krystian Ikiewicz** (*Toruń Centre for Astronomy of Nicolaus Copernicus University, Toruń, Poland*) Photometric observations of Epsilon Aurigae during the eclipse in 2009-2011 (**12+3**)
- 14.45-15.00 Svetlana Artemenko**, P. P. Petrov, K. N. Grankin. (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Rotational effects in classical T Tauri Stars (**12+3**)
- 15.00-15.05 Katarzyna Drozd**, E. Świerczyński (*Toruń Centre for Astronomy of the Nicolaus Copernicus University, Toruń, Poland*) V407 Cyg nova-like outburst (**poster**)
- 15.10-16.00 lunch**
- 16.00-19.00 City tour** (by bus)
- 19.00-23.00 Kyiv by night** (walking tour)

**Thurthday, April 26**

**Section 'High-Energy Astrophysics & Astroparticle Physics'**

## Programme

09.00-09.30 morning coffee

09.30-09.45 **Dmytro Rogozin**, B. I. Hnatyk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Inverse Compton radiation of superconducting cosmic strings (12+3)

09.45-10.00 **Iryna Lypova** (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Investigation of gamma/electron separation methods for array of Cherenkov telescopes (12+3)

10.00-10.15 **Artem Bogdan**, B. I. Hnatyk, V. Marchenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The X-ray structure of extragalactic jets (12+3)

10.15-10.30 **Volodymyr Marchenko**, A. Bogdan (*Taras Shevchenko Chernigiv National Pedagogical University, Chernigiv, Ukraine*) The X-ray structure analysis of jet in 3C 273 (12+3)

10.30-10.45 **Denis Sokolov**, K. Sukach, I. Komok, V. Marchenko (*Taras Shevchenko Chernigiv National Pedagogical University, Chernigiv, Ukraine*) Measuring extension of sources in extragalactic jets (12+3)

10.45-10.50 **Bari Maqbool**, R. Misr, N. Iqbal, G. Dewnagan (*University of Kashmir, Srinagar, India*) Structure and stability of X-ray irradiated accretion disk (poster)

10.50-10.55 **Gor Oganessian**, G. M. Beskin (*Southern Federal University, Rostov-on-Don, Russia*) Afterglows of gamma-ray bursts with known redshifts (poster)

10.55-11.25 tea-break

11.25-12.05 **Ericson Lopez** (*Quito Astronomical Observatory, Quito, Ecuador*) A review on GRB Models (invited)

12.05-12.20 **Oleksandr Sushchov**, I. S. Yakymchuk, O. O. Kobzar, V. V. Marchenko, B. I. Hnatyk (*Astronomical Scientific Research Center of Taras Shevchenko Chernigiv National Pedagogical University, Chernigiv, Ukraine*) Sources positions for UHECR events detected by the AUGER observatory (12+3)

12.20-12.35 **Matthias Plum** (*III. Physikalisches Institut A, Aachen, Germany*) Searching for the sources of ultra high energy cosmic rays with a wavelet analysis (12+3)

12.35-12.50 **Mustafa Bozkurt**, M. Hudaverdi, T. Ergin Cosmic ray acceleration and high energy modelling Cas A and SNR G335.2+00.1 (*Bogazici University, Istanbul, Turkey*) (12+3)

12.50-12.55 **Mykhailo Sydorenko**, B. I. Hnatyk, V. V. Marchenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Numerical simulation of the cosmic rays stochastic acceleration in relativistic blazar jet medium (poster)

13.00-13.50 lunch

### Section 'Interstellar Medium'

14.00-14.40 **Ryszard Szczerba** (*N. Copernicus Astronomical Center, Toruń, Poland*) Water formation in envelopes of C-rich stars (invited)

14.40-14.55 **Vasyl Beshley**, T. Kuzyo, O. Petruk (*Institute for Applied Problems in Mechanics and Mathematics, Lviv, Ukraine*) Role of magnetic fields in evolution of adiabatic supernova remnants (12+3)

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**14.55-15.10 Taras Kuzyo**, V. Beshley, O. Petruk (*Ivan Franko National University of Lviv, Lviv, Ukraine*) One-dimensional numerical hydrodynamical simulations of the post-adiabatic supernova remnants **(12+3)**

**15.10-15.25 Maryana Sokil**, B. Ya. Melekh, O. Sagan (*Ivan Franko National University of Lviv, Lviv, Ukraine*) Photoionization modelling of planetary nebulae in the Large Magellanic Cloud **(12+3)**

**15.25-15.40 Ihor Koshmak**, B. Ya. Melekh (*Ivan Franko National University of Lviv, Lviv, Ukraine*) The influence of stellar wind bubbles on the radiation ionizing field in HII regions **(12+3)**

**15.40-16.10 tea-break**

**16.10-16.25 Jayanta Dutta**, R. Klessen, P. C. Clark (*Institute of Theoretical Astrophysics, Heidelberg, Germany*) Angular momentum transport in primordial star formation **(12+3)**

**16.25-16.40 Erika Verebéli**, L. V. Toth (*Eotvos Lorand University, Budapest, Hungary*) Herschel galactic cold cloud core analysis **(12+3)**

**16.40-16.55 Paweł Dobierski** (*Centre for Astronomy of Nicolaus Copernicus University, Toruń, Poland*) Fe clouds in interstellar medium **(12+3)**

**16.55-17.00 Roman Korytko**, B. Ya. Melekh (*Ivan Franko National University of Lviv, Lviv, Ukraine*) The energy distribution determination in the ionizing radiation spectrum of HII regions in the spiral galaxy NGC 300 **(poster)**

**17.00-17.05 Oleh Buhajenko** (*Ivan Franko National University of Lviv, Lviv, Ukraine*) Detailed method for calculation diffuse component of the radiation in nebular objects **(poster)**

**Section 'Positional Astronomy'**

**17.05-17.20 Victor Pap**, V. P. Zhaborovskyy, M. M. Medvedsky, V. Ya. Choliy (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) Telescope inaccuracy model based upon satellite laser ranging data **(12+3)**

**17.20-17.35 Marina Ischenko** (*Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine*) GPS reprocessing campaign in the Main Astronomical Observatory of NAS of Ukraine **(12+3)**

**17.35-17.50 Vadim Tkachuk**, V. Ya. Choliy (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Comparison of the basic ephemeris "In-situ" **(12+3)**

**17.50-18.05 Roman Esselbakh, Stanislav Mel'kov** (*Donbass State Technical University, Alchevsk, Ukraine*) Perspective signal registration methods in the satellite laser ranging with following frequency of transmitted pulses up to 10 Hz **(12+3)**

**19.00-22.00 Conference dinner**

**Friday, April 27**

**Section 'Solar Physics and Heliosphere'**

**09.00-09.30 morning coffee**

**Extended self-similarity analysis of the turbulent processes in the boundary regions of the Earth's magnetosphere**

Alexander Tsupko<sup>1</sup>, L. V. Kozak<sup>1</sup>, S. P. Savin<sup>2</sup>, A. T. Y. Lui<sup>3</sup>

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The turbulent regions are non-linear systems with a huge number of degrees of freedom. Precise determination of the mathematical dependence on time of the velocity fields, temperature, pressure etc. cannot be given. The analysis of such a system can be performed using only the statistical methods which describe the statistical properties of the flows' ensembles. Moreover, the most important thing during consideration is the study of turbulence properties depending on the scales. This study is dedicated exactly to the examination of statistical features of the magnetic field fluctuations in the boundary regions of the Earth's magnetosphere at different timescales. The satellite 'Cluster' measurements during 2004 – 2009 were used. Herewith the analysis of magnetic field fluctuations was performed as the characteristics of turbulent processes. Examination of the structure functions of high orders (up to 9th) allowed to determine the character of turbulent processes and to examine the diffusion in the considered regions. The significant difference of turbulent processes' type in the solar wind plasma and in the magnetosheath was obtained, and also the presence of superdiffusion in the boundary regions of the Earth's magnetosphere. The study is supported in part by the project No. F40.2/053.

**Space-time ARIMA modeling of global TEC fields**

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In this work the computational efficiency of ARIMA modelling of global TEC fields is studied. Numerical experiment have been provided to determine better p- and q- degrees of model. Parameter estimation and forecasts have been done for several valuable time periods. We present first results and future prospects.

**The study of variability of the atmospheric extinction from observations at the telescope RTT-150**

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The atmospheric extinction is determined using observations of Landolt standard fields from Russian-Turkish Telescope RTT-150 performed in BVRI Johnson-Cousins-Bessell system from 57 nights over 2005-2009 years. A simple 3-component model for the extinction was used for analysis. The Rayleigh scattering and ozone absorption have been accepted as well known, that made it possible to distinguish aerosol scattering from observations. The dependence of atmospheric extinction from time is discussed.

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