



20th Young Scientists' Conference on Astronomy and Space Physics

April 22-27, 2013

Kyiv, Ukraine

PROGRAMME

Registration, poster section, morning coffee and tea-breaks will take place in the poster-hall

All morning sessions will take place in the room 209; all evening sessions, official opening and closure will take place in the room 200

Monday, April, 22

09.00-13.00 - Registration

14.00-14.30 - Official opening

Section 'Variable Stars'

Chair: Oleksiy Ivanyuk

14.30-15.15 Nino Chkheidze (Ilia State University, ITP, Centre for Theoretical Astrophysics, Tbilisi, Georgia) The multiwavelength properties and possible unification of different classes of pulsars (**invited**)

15.15-15.45 tea-break

15.45-16.00 Michał Żejmo, M. Rybicka, K. Krzeszowski, A. Slowikowska, K. Gozdziwski (*Kepler Institute of Astronomy, University of Zielona Góra, Zielona Góra, Poland*) Photometric statistical criteria for identification of binary systems with white dwarfs (**12+3**)

16.00-16.15 Katarzyna Drozd, E. Ragan, E. Świerczyński (*Toruń Centre for Astronomy, Nicolaus Copernicus University, Toruń, Poland*) V407 Cyg and RS Oph – comparison of two exotic variables (**12+3**)

- 16.15-16.30** Przemyslaw Mroz (*Warsaw University Observatory, Warsaw, Poland*) On the new dwarf novae in the Galactic Disk (**12+3**)
- 16.30-16.45** Elena Babina, S. A. Artemenko, P. P. Petrov, K. N. Grankin (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Characteristic times of wind variability in classical T Tauri stars (**12+3**)
- 16.45-17.00** Svetlana Artemenko, K. N. Grankin, P. P. Petrov (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Rotation effects in classical T Tauri stars (**12+3**)
- 17.00-17.15** Vitalii Breus, I. L. Andronov, P. Dubovsky, T. Hegedus, P. Beringer, K. Petrik, I. Kudzej (*Odesa National Maritime University, Odesa, Ukraine*) Variability of the spin period of the intermediate polar V405 Aur (**12+3**)
- 17.15-17.20** Aleksey Sosnovskij, E. P. Pavlenko (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Color study of the eclipsing cataclysmic variable 1RXJ 003829 in an inactive state in 2010–2012 (**poster**)
- 17.20-17.25** Alex Rublevskii, V. V. Prokofjeva (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Comparison of the observations results of asteroid 4 Vesta obtained with spectral-frequency method and the results of NASA's Dawn Mission (**poster**)
- 17.25-17.30** Alexandr Savushkin, D. Mkrtichian (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Discovery of 47-min pulsation in oEA system LT Her (**poster**)
- 17.30-17.35** Sergey Belan, D. N. Shakhovskoy (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Long-term photopolarimetric variability of DD Ser (**poster**)
- 17.35-17.40** Alisa Shchurova, E. Pavlenko, V. Malanushenko (*Tavrida National V. I. Vernadsky University*) The two accretion states of the polar 1RXS J184542 in 2012 (**poster**)
- 17.40-17.55** Mariusz Tarnopolski (*Astronomical Observatory, Jagiellonian University, Cracow, Poland*) Titan's influence on Hyperion's rotational dynamics (**12+3**)
- 18.30-21.00** Excursion to the Main Astronomical Observatory of the National Academy of Sciences of Ukraine

Tuesday, April, 23

Section 'Atmosphere Studies'

Chair: Anatolii Koval

09.00-09.30 morning coffee

- 09.30-09.45** Andrii Bovchaliuk, G. Milinevsky, V. Danylevsky, V. Kabashnikov, N. Miatselskaya (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Aerosol distribution over Europe: the comparison of satellite POLDER/PARASOL and model GEOS-Chem data (**12+3**)
- 09.45-09.50** Valentyn Bovchaliuk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Variability of the aerosol characteristics by transect observations over Ukraine (**poster**)
- 09.50-09.55** Igor Gala, L. V. Kozak (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Lightning discharges in the Earth's atmosphere: terms of occurrence and main characteristics (**poster**)
- 09.55-10.00** Tetyana Zaets, L. V. Kozak, A. Odzimek (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The analysis of the features of the TLE phenomena in the Earth's atmosphere (**poster**)

Section ‘Ionosphere and Heliosphere Studies’

Chair: Anatolii Koval

10.00-10.45 Oleksiy Agapitov (*LPC2E/CNRS, University of Orleans, France; Taras Shevchenko National University of Kyiv, Ukraine*) Plasma waves and electron dynamics in the radiation belts (**invited**)

10.45-11.15 tea-break

11.15-12.00 Yuri Yasyukevich (*Institute of Solar-Terrestrial Physics SB RAS, Irkutsk, Russia*) GPS/GLONASS studying the ionosphere dynamic mode (**invited**)

12.00-12.15 Yuri Yasyukevich, N. P. Perevalova, V. A. Sankov (*Institute of Solar-Terrestrial Physics SB RAS, Irkutsk, Russia*) Peculiarities of different wave propagation mode during the 11 March 2011 Tohoku earthquake (**12+3**)

12.15-12.30 Ilya Edemskiy, Yu. V. Yasyukevich, S. V. Voeykov, P. L. Malkova (*Institute of Solar-Terrestrial Physics SB RAS, Irkutsk, Russia*) Latitudinal variations of solar terminator generated wave packets parameters, derived from 2008 year data for different regions (**12+3**)

12.30-12.45 Sviatoslav Shevchenko, O. K. Cheremnykh, S. O. Cheremnykh, A. S. Parnowski (*National Technical University of Ukraine “Kyiv Polytechnical Institute”, Institute of Physics and Technology, Kyiv, Ukraine*) On damping mechanisms of ULF MHD modes in the inner magnetosphere of Earth (**12+3**)

12.45-13.00 Alexander Tsupko, L. V. Kozak (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Some features of turbulent processes in the Earth’s magnetosphere from “Cluster II” mission measurements (**12+3**)

13.00-13.15 Eugen Tkachenko, Yu. G. Rapoport, Yu. A. Selivanov, V. M. Ivchenko, V. V. Grimalsky (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) AGW and PEMW in inhomogeneous system “atmosphere-ionosphere” (**12+3**)

13.15-13.20 Nataliya Nosikova, V. A. Pilipenko, N. V. Yagova, A. Y. Schekotov, V. V. Surkov (*National Research Nuclear University “MEPhI”, Moscow, Russia*) Parameters of natural electromagnetic emissions in the frequency range 5-20 Hz in the F-layer of the Earth’s ionosphere as measured by CHAMP (**poster**)

13.20-13.25 Edyta Puchalska (*Nicolaus Copernicus University, Toruń, Poland*) The mystery of Auroras (**poster**)

13.25-13.40 Svetlana Glubokova, I. V. Chashei, S. A. Tyul’bashev (*Pushchino Radio Astronomy Observatory, Lebedev Physical Institute, Russian Academy of Science, Pushchino, Russia*) Interplanetary plasma turbulence parameters from observations of 3C 48 and 3C 298 near minimum of solar activity (**12+3**)

13.40-13.45 Vladyslav Mogylchak, L. V. Kozak (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Effect of water vapour on the absorption of light in the Earth’s atmosphere (**poster**)

13.45-14.45 lunch

15.30-19.00 City tour

Wednesday, April, 24

Section ‘Theoretical Cosmology and Gravitation’

Chair: Dmytro Iakubovskyi

09.00-09.15 morning coffee

09.15-09.30 Dmytro Iakubovskyi (*Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine*) Refined scaling relation between dark matter halo parameters (**12+3**)

09.30-09.45 Iryna Ivanchenko, V. M. Gorkavenko, Yu. A. Sitenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Induced vacuum current and magnetic field in the background of a cosmic string modelled by impenetrable magnetic-flux-carrying tube (**12+3**)

09.45-10.00 Margarita Sobolenko, P. Berczik (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Dynamic analysis of the endproducts after galaxies merging (**12+3**)

10.00-10.05 Lidiia Zadorozhna, B. I. Hnatyk, Yu. A. Sitenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Magnetic field of cosmic strings in the early Universe (**poster**)

10.05-10.10 Alexander Agapov, I. K. Rozgacheva (*Peoples’ Friendship University of Russia, Moscow, Russia*) Fractal model of the Universe’s large-scale structure (**poster**)

10.10-10.15 Emily Stukalo, V. I. Zhdanov (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Spherically symmetric solutions of General Relativity with a scalar field within the Dark Energy model that mimics Λ CDM (**poster**)

10.15-10.45 tea-break

Section ‘Observational Cosmology’

Chair: Dmytro Iakubovskyi

10.45-11.30 Antonino Del Popolo (*Catania University, Catania, Italy*) The small scale problems of the Λ CDM model (**invited**)

11.30-11.45 Olga Sergijenko, B. Novosyadlyj (*Astronomical Observatory, Ivan Franko National University of Lviv, Lviv, Ukraine*) Dynamical dark energy with barotropic equation of state: observational constraints from Planck data (**12+3**)

11.45-12.00 Andrei Borisov, I. K. Rozgacheva (*Peoples’ Friendship University of Russia, Moscow, Russia*) Galaxy clusters’ substructures in optics and X-rays (**12+3**)

12.00-12.15 Anatoliy Tugay (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Bright X-ray galaxies in SDSS filaments (**12+3**)

12.15-12.30 Olena Torbaniuk, G. Ivashchenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Redshift dependence of the mean transmission in the Ly α -forest: effects of the continuum fitting technique (**12+3**)

12.30-12.45 Kateryna Agienko (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Nitrogen abundance estimation in WR galaxies of SDSS DR7 (**12+3**)

12.45-13.45 lunch

Section ‘High Energy Astrophysics’

Chair: Ievgen Vovk

- 14.00-14.45** Ericson Lopez (*Space Sciences Telescope Institute, USA; Quito Astronomical Observatory of National Polytechnic School, Ecuador*) Constraining the intrinsic energy of GRB events (**invited**)
- 14.45-15.00** Dmytro Iakubovskiy (*Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine*) Search for a radiative dark matter decay signatures using combination archival XMM-Newton observations of galaxies (**12+3**)
- 15.00-15.15** Mykhailo Sydorenko, B. I. Hnatyk, V. V. Marchenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Stochastic acceleration of charged particles in turbulent magnetic fields (**12+3**)
- 15.15-15.30** Iryna Lypova, M. A. Shayduk, G. Maier (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Investigation of gamma/electron separation methods for CTA (**12+3**)
- 15.30-15.45** Roman Gnatyk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Transition from galactic to extragalactic cosmic rays (**12+3**)
- 15.45-16.15** **tea-break**
- 16.15-16.30** Dmytro Rogozin, L. V. Zadorozhna, B. I. Hnatyk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Synchrotron self-Compton and inverse Compton radiation of the superconducting cosmic strings (**12+3**)
- 16.30-16.35** Iurii Babyk, M. Chernyakova (*Dublin Institute for Advanced Studies, Dublin, Ireland*) Suzaku observations of the relativistic pulsar wind in PSR B1259/SS2883 system (**poster**)

Section ‘Active Galactic Nuclei’

Chair: Ievgen Vovk

- 16.35-16.50** Ievgen Vovk, A. Neronov (*ISDC Data Centre for Astrophysics, Versoix, Switzerland*) On the question of the breaks in the GeV spectra of blazars (**12+3**)
- 16.50-17.05** Alexandr Butenko, R. D. Dagkesamanskii, V. A. Samodurov, S. A. Tyulbashev (*Pushchino Natural Sciences Institute, Pushchino, Russia*) Search of giant radio sources in the 102.5 MHz Northern Sky survey (**12+3**)
- 17.05-17.20** Artem Bohdan, V. V. Marchenko, B. I. Hnatyk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The transverse and longitudinal structure of 3C273 X-ray jet (**12+3**)
- 17.20-17.35** Anton Dmytriiev, E. V. Fedorova (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Studying Fe K α line profile in Sy2 galaxy NGC 4388 (**12+3**)
- 17.35-17.40** Denis Sokolov, V. V. Marchenko (*Taras Shevchenko Chernigiv National Pedagogical University, Chernigiv, Ukraine*) An image of diffuse emission for Centaurus A (**poster**)
- 17.40-17.45** Ekaterina Sukach, V. V. Marchenko (*Taras Shevchenko Chernigiv National Pedagogical University, Chernigiv, Ukraine*) Analysis of spatial and temporal properties of active galaxies’ relativistic jets (**poster**)
- 17.45-17.50** Anatoliy Vasylenko, E. V. Fedorova, V. I. Zhdanov (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Observations of AGN in Sy2 galaxy NGC 3281 by XMM-Newton and INTEGRAL satellites (**poster**)
- 18.30-22.00** **Organ hall / opera hall**

Thursday, April, 25

Section ‘Exoplanets’

Chair: Oleksiy Ivanyuk

09.00-09.30 morning coffee

09.30-09.45 Damian Puchalski, G. Maciejewski (*Toruń Centre for Astronomy of Nicolaus Copernicus University, Toruń, Poland*) Observations of transiting exoplanets in Toruń Centre for Astronomy (**12+3**)

09.45-10.00 Artem Burdanov, A. A. Popov, V. V. Krushinsky, K. I. Ivanov (*Ural Federal University, Ekaterinburg, Russia*) Two transiting exoplanet candidates in Cygnus from the MASTER-Net project (**12+3**)

10.00-10.15 Oleksiy Matsiaka, Yu. Kuznyetsova, V. Krushevska, M. Andreev (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Analysis of the light curve of exoplanet transit systems TrES-3 and WASP-3 (**12+3**)

10.15-10.20 Yana Shliakhetskaya, Yu. Kuznyetsova, A. Vid'machenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Spectral studies of exoplanet transit system WASP-33 during some transit phenomena (**poster**)

10.20-10.25 Damian Puchalski, G. Maciejewski (*Toruń Centre for Astronomy of Nicolaus Copernicus University, Toruń, Poland*) Searching for TTV signal in HAT-P-16 system (**poster**)

10.25-11.00 tea-break

Section ‘Stellar Astrophysics’

Chair: Oleksiy Ivanyuk

11.00-11.45 Michael Mishchenko (*New York, USA*) Polarimetric remote sensing of terrestrial aerosols: from Maxwell's equations to space missions (**invited**)

11.45-12.00 Kateryna Frantseva, N. G. Shchukina (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) One-dimensional radiative transfer modelling of the polarization of the continuous spectrum of the late-type stars (**12+3**)

12.00-12.15 Kateryna Rieznik, V. M. Reshetnyk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Spectrophotometry of flares on EV Lac in 2010-2011 (**12+3**)

12.15-12.30 Bartłomiej Debski (*Astronomical Observatory of the Jagiellonian University, Kraków, Poland*) Overcontact binaries in the Kepler mission: migration of the dark spots (**12+3**)

12.30-12.45 Oleksiy Ivanyuk (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Spectroscopic properties of the 107 stars from the CHEPS sample (**12+3**)

12.45-13.00 Iryna Kushniruk, Ya. V. Pavlenko, B. Kaminskiy (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) MgH lines in spectrum of Arcturus (**12+3**)

13.00-13.15 Mario Pasquato (*Yonsei University, Seoul, Korea*) Dynamically enhanced mass-loss on the Red Giant Branch: a solution to the second-parameter problem? (**12+3**)

13.15-13.30 Ghada Farouk Mohamedien, A. Essam (*National Research Institute of Astronomy and Geophysics, Cairo, Egypt*) CCD photometry and modelling of the SWASP variable 1SWASP J064501.21+342154.9 (**12+3**)

13.30-13.35 Andrew Simon (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Optical study of RX J0440.9+4431 in 2010-2012 (**poster**)

13.35-14.30 lunch

Section 'Solar System'

Chair: Oleksiy Ivanyuk

14.30-15.15 Bojan Novakovic, H. Hsieh, A. Cellino (*University of Belgrade, Belgrade, Serbia*) Linking main-belt comets to asteroid families (**invited**)

15.15-15.45 tea-break

15.45-16.00 Anton Pomazan (*Research Institute "Nikolaev Astronomical Observatory", Mykolaiv, Ukraine*) Analysis of astrometric measurements of selected asteroids for determination of Yarkovsky effect (**12+3**)

16.00-16.05 Olena Shubina, I. V. Kulyk, P. P. Korsun, Ya. O. Romaniuk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Photometry of the distant active comet C/2010 S1 (LINEAR) (**poster**)

16.05-16.10 Alyona Mozgova, K. I. Churyumov, N. S. Kovalenko, A. M. Mozgova, V. O. Ponomarenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The spectrum of a meteor of 9/10 August 1965 (**poster**)

16.10-16.15 Kostyantyn Radchenko (*National Aviation University, Kyiv, Ukraine*) Peculiarities of the dynamics and the origin of retrograde satellites of planets (**poster**)

16.15-16.20 Pasha Plotko, F. P. Velichko, S. V. Zaitsev, V. A. Psarev (*Lyceum of Kharkov Institute of Physics and Mathematics, Kharkiv, Ukraine*) Photometry and polarimetry of asteroid 4 Vesta (**poster**)

16.20-16.25 Olexandr Baransky, A. I. Zhdanov (*Astronomical Observatory, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) 2P/Enke, 4P/Faye, 6P/d'Arrest, 21P/Giacobini-Zinner and 27P/Crommelin comets' disintegration study (**poster**)

16.25-16.30 Vasyl Ponomarenko, K. I. Churyumov, V. V. Kleshchonok, A. O. Simon (*Astronomical Observatory, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) 2P/Enke, 4P/Faye, 6P/d'Arrest, 21P/Giacobini-Zinner and 27P/Crommelin comets' disintegration study (**poster**)

Section 'Positional Astronomy and Astronomical Equipment'

Chair: Oleksiy Ivanyuk

16.30-16.45 Vadym Tkachuk, V. Ya. Choliy (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Processing of VLBI data of MAO NASU analysis centre with new SteelBreeze software (**12+3**)

16.45-16.50 Sergii Pokhvala, V. M. Reshetnyk, B. E. Zhilyaev (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Tests of commercial color CMOS cameras in astronomical applications (**poster**)

16.50-16.55 Andry Dolgov, S. Plachinda (*Taurida National V. I. Vernadsky University, Simferopol, Ukraine*) Comparison of two methods for processing images spectropolarimetric echelle spectrograph on the example of a magnetic star B CrB (**poster**)

16.55-17.00 Arthur Pulatov (*Sevastopol National Technical University, Sevastopol, Ukraine; Crimean Astrophysical Observatory, Nauchny, Ukraine*) Registration a rapidly changing electromagnetic waves, using a modern electronic equipment (**poster**)

19.00-22.00 Conference dinner

Friday, April, 26

Section ‘Interstellar Medium’

Chair: Ganna Ivashchenko

09.00-09.15 morning coffee

09.15-09.30 Ihor Koshmak, B. Ya. Melekh (*Ivan Franko National University of Lviv, Lviv, Ukraine*) Modelling of low-metallicity HII region emission with bubble-like structure inside (**12+3**)

09.30-09.45 Oleh Buhajenko, B. Ya. Melekh (*Ivan Franko National University of Lviv, Lviv, Ukraine*) Optimization of the integration step in calculation procedure of the nebular diffuse radiation (**12+3**)

09.45-10.00 Yanina Soichuk, B. Ya. Melekh, V. Holovatyi, N. Havrylova (*Ivan Franko National University of Lviv, Lviv, Ukraine*) On the search of optimal photoionization models of planetary nebulae (**12+3**)

Section ‘Solar Physics’

Chair: Kateryna Frantseva

10.00-10.15 Ievgeniia Sadovenko, M. I. Pishkalo (*Astronomical Observatory, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Structure of the solar corona during total solar eclipses in solar cycle 23 and modelling of coronal magnetic field in the potential approach (**12+3**)

10.15-10.30 Olga Botygina, V. G. Lozitsky, N. I. Lozitska (*Astronomical Observatory, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Magnetic fields in limb solar flares (**12+3**)

10.30-10.45 Yuriy Fursiak (*Crimean Astrophysical Observatory, Nauchny, Ukraine*) Fast-growing sunspot groups AR 1618, AR 1619, AR 1620, AR 1640 and their features (**12+3**)

10.45-10.50 Olexandra Baran (*Astronomical Observatory, Ivan Franko National University of Lviv, Lviv, Ukraine*) Power spectra of convective motions in the solar photosphere (**poster**)

10.50-10.55 Valery Krivodubskij, Ie. Sadovenko (*Astronomical Observatory, National Taras Shevchenko University of Kyiv, Kyiv, Ukraine*) The macroscopic turbulent diamagnetism and stability of sunspots (**poster**)

10.55-12.00 Poster section + tea-break

12.00-12.30 Official closure

Saturday, April 27

09.00-12.00 Excursion to Museum of Folk Architecture and Life of Ukraine