Taras Shevchenko National University of Kyiv
Department of Astronomy and Space Physics

20th Young Scientists' Conference on Astronomy and Space Physics

Abstracts

Kyiv, 2013

20th Young Scientists' Conference on Astronomy and Space Physics

April 22-27, 2013
Kyiv, Ukraine

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Address for correspondence:

Dr. V. M. Ivchenko
P.O. Box 7
Kyiv-22, 03022, Ukraine

e-mail: ysc.kyiv@gmail.com

Address:

Astronomy and Space Physics Department,
Faculty of Physics,
Taras Shevchenko National University of Kyiv,
Glushkova ave., 4, Kyiv, 03127, Ukraine.
Phone: +(380) 44-526-44-57
Fax: +(380) 44-526-45-07

Preface

This year Young Scientists' Conference on Astronomy and Space Physics is held for the twentieth time. We all have been looking forward to the annual meeting of astronomers at the 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 1994-2012 participants from Ukraine, Russia, Poland, France, Germany, Spain, Sweden, Libya, Egypt, Japan, Finland, Turkey, China, Slovakia, Armenia, USA, Romania, Iran, Armenia, Georgia, Morocco, South Africa and other countries participated in Young Scientists' Conferences.

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.

Kateryna Frantseva and
the Local Organizing Committee

PROGRAMME

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 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)

16.00-16.15 Michał Żejmo, M. Rybicka, K. Krzeszowski, A. Slowikowska, K. Gozdziewski (Kepler Institute of Astronomy, University of Zielona Góra, Zielona Góra, Poland) Photometric statistical criteria for identification of binary systems with white dwarfs (12+3)

16.15-16.30 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)

16.30-16.45 Przemyslaw Mroz (Warsaw University Observatory, Warsaw, Poland) On the new dwarf novae in the Galactic Disk (12+3)

16.45-17.00 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)

17.00-17.15 Svetlana Artemenko, K. N. Grankin, P. P. Petrov (Crimean Astrophysical Observatory, Nauchny, Ukraine) Rotation effects in classical T Tauri stars (12+3)

17.15-17.30 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)

17.30-17.35 Aleksey Sosnovskij, E. P. Pavlenko (Crimean Astrophysical Observatory, Nauchny, Ukraine) Color study of the eclipsing cataclysmic variable 1RXJ 003829 in an inactive state 2010–2012 (poster)

17.35-17.40 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)

17.40-17.45 Alexandr Savushkin, D. Mkrtichian (Crimean Astrophysical Observatory, Nauchny, Ukraine) Discovery of 47-min pulsation in oEA system LT Her (poster)

17.45-17.50 Sergey Belan, D. N. Shakhovskoy (Crimean Astrophysical Observatory, Nauchny, Ukraine) Long-term photopolarimetric variability of DD Ser (poster)

17.50-17.55 Alisa Shchurova, E. Pavlenko, V. Malanushenko (Tavrida National V. I. Vernadsky University) The two accretion state of the polar 1RXS J184542 in 2012 (poster)

17.55-18.10 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

09.00-09.25 morning coffee

09.25-09.40 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)

09.40-09.45 Valentyn Bovchaliuk (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Variability of the aerosol characteristics by transect observations over Ukraine (poster)

09.45-09.50 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)

09.50-09.55 Igor Gala, L. V. Kozak (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Lightning discharges in Earth's atmosphere: terms of occurrence and main characteristics (poster)

09.55-10.00 Sergii Pylypenko (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Variations of winds in the upper atmosphere over the cyclones (poster)

10.00-10.05 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)

10.05-10.10 Maureen Chioma Umeh, B. G. Ayantunji (Nnamdi Azikiwe University, Awka, Nigeria) Seasonal dependence of relative humidity on Solar radiation (poster)

10.10-10.15 Evgeniy Udodov (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Ozone vertical distribution over Kiev-Goloseyev station (poster)

Section 'Ionosphere & Heliosphere Studies'

Chair: Anatolii Koval

10.15-11.00 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)

11.00-11.30 tea-break

11.30-12.15 Yuri Yasyukevich (Institute of Solar-Terrestrial Physics SB RAS, Irkutsk, Russia) GPS/GLONASS studying the ionosphere dynamic mode (invited)

12.15-12.30 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)

12.30-12.45 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)

12.45-13.00 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)

13.00-13.15 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)

13.15-13.30 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)

13.30-13.35 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)

13.35-13.40 Edyta Puchalska (Nicolaus Copernicus University, Toruń, Poland) The mystery of Auroras (poster)

13.40-13.55 Doha Al-Feadh, A. Al-Sawad, W. Al-Ramdhan (University of Basrah, Basrah, Iraq) Estimating of times and heliospheric location of the accelerated energetic protons associated with two CMEs in the Multi Eruption Solar Energetic Particle (MESEP) events (12+3)

13.55-14.10 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)

14.10-15.00 lunch

15.30-19.00 City tour

Wednesday, April, 24

Section 'Theoretical Cosmology & 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 Rakeshwar Purohit (Mohanlal Sukhadia University, Udaipur, India) Magnetized Bianchi type IX bulk viscose fluid (12+3)

10.00-10.15 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)

10.15-10.20 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)

10.20-10.25 Alexander Agapov, I. K. Rozgacheva (Peoples' Friendship University of Russia, Moscow, Russia) Fractal model of the Universe's large-scale structure (poster)

10.25-10.30 Anita Bagora (Jaipur National University, Jagatpura, India) Conformally flat V Bianchi magnetized titled cosmological model (poster)

10.30-10.35 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 ΛCDM (poster)

10.35-11.00 tea-break

Section 'Observational Cosmology'

Chair: Dmytro Iakubovskyi

11.00-11.45 Antonino Del Popolo (Catania University, Catania, Italy) The small scale problems of the ΛCDM model (invited)

11.45-12.00 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)

12.00-12.15 Andrei Borisov, I. K. Rozgacheva (Peoples' Friendship University of Russia, Moscow, Russia) Galaxy clusters' substructures in optics and X-rays (12+3)

12.15-12.30 Anatoliy Tugay (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Bright X-ray galaxies in SDSS filaments (12+3)

12.30-12.45 Olga Vasylenko, G. Ivashchenko (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Redshift dependence of the β parameter describing non-Hubble motions of quasars (12+3)

12.45-13.00 Ganna Ivashchenko, O. Vasylenko (Astronomical Observatory, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Cross-correlation function of SDSS quasars and WiggleZ galaxies: parameters of non-Hubble motions (12+3)

13.00-13.15 Olena Torbaniuk, G. Ivashchenko (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Redshift dependence of the mean transmission in the Lyα-forest: effects of the continuum fitting technique (12+3)

13.15-13.20 Kateryna Agienko (Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine) Nitrogen abundance estimation in WR galaxies of SDSS DR7 (poster)

13.20-13.25 Talieh Mohamadi, A. B. Sepehr (Iranian National Observatory, Islamic Azad University Central Tehran Branch, Tehran, Iran) The evolution of the absolute magnitude function of quasars in the Milliquas, Master and 2QZ quasar catalogs (poster)

13.25-13.30 Rouhollah Joveini, Teymur Saifollahi, Soroush Sotoudeh (Sharif University of Technology, K. N. Toosi University of Technology, Tehran, Iran) The relation between the star formation rate and local density for the Virgo galaxy cluster (poster)

13.30-14.00 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 Iakubovskyi (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 Denys Malyshev, A. Boyarsky, O. Ruchayskiy (Bogolyubov Institute for Theoretical Physics, Kyiv, Ukraine) Spectral and spatial variations of the diffuse gamma-ray background in the vicinity of the Galactic plane and possible nature of the feature at 130 GeV (12+3)

15.15-15.30 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)

15.30-15.45 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)

15.45-16.15 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)

16.35-16.40 Roman Gnatyk (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Transition from galactic to extragalactic cosmic rays (poster)

Section 'Active Galactic Nuclei'

Chair: Ievgen Vovk

16.40-16.55 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)

16.55-17.10 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 Nothern Sky survey (12+3)

17.10-17.25 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)

17.25-17.40 Anton Dmytriiev, E. V. Fedorova (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Studying Fe Kα line profile in Sy2 galaxy NGC 4388 (12+3)

17.40-17.45 Denis Sokolov, V. V. Marchenko (Taras Shevchenko Chernigiv National Pedagogical University, Chernigiv, Ukraine) An image of diffuse emission for Centaurus A (poster)

17.45-17.50 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)

17.50-17.55 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 Bartlomiej 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)

13.15-13.20 Andrew Simon (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Optical study of RX J0440.9+4431 in 2010-2012 (poster)

13.20-14.00 lunch

Section 'Solar System'

Chair: Oleksiy Ivanyuk

14.00-14.45 Bojan Novakovic, H. Hsieh, A. Cellino (University of Belgrade, Belgrade, Serbia) Linking main-belt comets to asteroid families (invited)

14.45-15.15 tea-break

15.15-15.30 Anton Pomazan (Research Institute "Nikolaev Astronomycal Observatory", Mykolaiv, Ukraine) Analysis of astrometric measurements of selected asteroids for determination of Yarkovsky effect (12+3)

15.30-15.35 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)

15.35-15.40 Sergiy Zaitsev, V. Rosenbush, N. Kiselev (Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine) Database of polarimetry of planetary satellites (poster)

15.40-15.45 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)

15.45-15.50 Kostyantyn Radchenko (National Aviation University, Kyiv, Ukraine) Peculiarities of the dynamics and the origin of retrograde satellites of planets (poster)

15.50-15.55 Pasha Plotko, F. P. Velichko, S. V. Zaitsev, V. A. Psarev (Lyceum of Kharkiv Institute of Physics and Mathematics, Kharkiv, Ukraine) Photometry and polarimetry of asteroid 4 Vesta (poster)

15.55-16.00 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)

16.00-16.05 Vasyl Ponomarenko, K. I. Churyumov, V. V. Kleshchonok, A. O. Simon (Astronomical Observatory, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine) Changes in the spectrum of the star HIP 54721 during its coverage by comet C/2009 P1 (Garradd) (poster)

Section 'Positional Astronomy & Astronomical Equipment'

Chair: Oleksiy Ivanyuk

16.05-16.20 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)

16.20-16.35 Mohammad Khasawneh (Kordan University, Amman, Jordan) Site selection of an optical telescope in Jordan (12+3)

16.35-16.40 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)

16.40-16.45 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)

16.45-16.50 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)

10.00-10.15 Taras Kuzyo, V. Beshley, O. Petruk (Ivan Franko National University of Lviv, Lviv, Ukraine) Magnetic field in dynamics of post-adiabatic supernova remnants (12+ 3)

10.15-10.30 Mateusz Daszuta, W. Lewandowski, J. Kijak (University of Zielona Góra, Zielona Góra, Poland) Long-term observation scintillation of PSR B0823+26 (12+3)

Section 'Solar Physics'

Chair: Kateryna Frantseva

10.30-10.45 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)

10.45-11.00 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)

11.00-11.15 Yuriy Fursiak (Crimean Astrophysical Observatory, Nauchny, Ukraine) Fast-growing sunspot groups AR 1618, AR 1619, AR 1620, AR 1640 and their features (12+3)

11.15-11.20 Roman Zhygalkin (Crimean Astrophysical Observatory, Nauchny, Ukraine) TST Spectra View application (poster)

11.20-11.25 Olexandra Baran (Astronomical Observatory, Ivan Franko National University of Lviv, Lviv, Ukraine) Power spectra of convective motions in the solar photosphere (poster)

11.25-11.30 Valery Krivodubskij, Ie. Sadovenko (Astronomical Observatory, National Taras Shevchenko University of Kyiv, Kyiv, Ukraine) The macroscopic turbulent diamagnetism and stability of sunspots (poster)

11.30-12.30 Poster section + tea-break

12.30-13.00 Official closure

Saturday, April 27

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

SOLAR SYSTEM

Analysis of astrometric measurements of selected asteroids for determination of Yarkovsky effect

Anton Pomazan

Research Institute "Nikolaev Astronomical Observatory", Mykolaiv, Ukraine

anton@mao.nikolaev.ua

In order to identify and determine the Yarkovsky effect, a small non-gravitational force which causes secular changes of semi-major axis of the orbits of small asteroids and meteoroids, a list of asteroids was prepared for observations. This force arises due to radiative recoil of the anisotropic thermal re-emission from surfaces of the body. It is considered that the Yarkovsky effect has a great influence on the motion of the small asteroids, the size of which is less than 100 km. The changes of semi-major axis due to Yarkovsky effect has a value of $\sim 10^{-3}$ AU/Myr. The detection of such small deviations of the orbit requires a long series of observations and the high accuracy of the positions. This report presents the results of the observations of 10 asteroids for 2009–2012 and their analysis. The asteroids were selected based on the available list of asteroids with relatively large deviations from the unperturbed semi-major axis of the orbit. The observations were made on RTT-150 (NO TUBITAK, Turkey) and Mobitel (RI NAO, Ukraine). We computed the difference between the observed (O) and the calculated (C) positions as well as the standard deviation (RMS) of measurement. For the telescope RTT150 RMS is less than $0.1''$ in both coordinates, for the telescope Mobitel – $0.10''$ and $0.11''$ in right ascension and declination, respectively. High positional accuracy of the observational data gives us suggest that these observations, together with other observations from Minor Planet Center (MPC) can be used to identify and determine the value of the Yarkovsky effect.

Photometry of the distant active comet C/2010 S1 (LINEAR)

Olena Shubina[1], I. V. Kulyk[2], P. P. Korsun[2], Ya. O. Romaniuk[2]

[1]Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
[2]Main Astronomical Observatory of NAS of Ukraine, Kyiv, Ukraine

belkalenaastronom@gmail.com

Dynamically new comet C/2010 S1 (LINEAR) was observed at Lisnyky observational station (585) of the Taras Shevchenko National University. Kyiv Internet telescope Celestron CGE-1400 equipped with broadband UBVRI filters was used in the observations. During the observations the comet moved to the distances of 6.35 AU and 6.53 from the Sun and Earth, respectively. The comet demonstrated considerable level of physical activity therefore the images obtained in V and R bands were used to investigate the dust component of the cometary coma as well as to study the image morphology. Comet brightness was at level of 14.85±0.06 and 14.54±0.04 magnitudes in V and R bands respectively. The brightness distribution was found to be inverse proportion to the projected distance from the nucleus with a slope of about -1. Therefore the calculated $Af\rho$, 8373.2 sm for V filter and 8207.7 sm for R filter, parameter was used to estimate the dust production rate. Assuming the steady outflow from the nucleus, the dust production rate was estimated to be about 600 kg/s. Comparison of the V-R color indices obtained from the inner coma region with solar ones does not point out reddening of reflected solar radiation in the spectral region of 540-683 nm.