



22nd Young Scientists' Conference on Astronomy and Space Physics

April 20–25, 2015

Kyiv, Ukraine

PROGRAMME

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

Monday, April, 20

09.00-13.00 - Registration

13.00-13.30 - Official opening

Section 'Stellar Astrophysics and Interstellar Medium'

Chair: Oleksiy Ivanyuk

Room 200

13.30-14.15 Viktor Khalack (*Université de Moncton, Moncton, Canada*) Project VeSElKA: Vertical Stratification of Elements Abundance in CP stars (**invited**)

14.15-14.30 Jaime Andrés Rosales Guzmán, R. Mennickent (*University of Concepción, Concepción, Chile*) Photometric search for new DPVs using ASAS's Catalogue and Spectroscopic Analysis with CHIRON (**12+3**)

14.30-14.45 Paulina Karczmarek (*Astronomical Observatory, University of Warsaw, Warsaw, Poland*) Contamination of RR Lyrae stars from Binary Evolution Pulsators (**12+3**)

14.45-15.00 Iryna Kushniruk, Ya. V. Pavlenko, Z. H. Zhang, M. C. Gálvez-Ortiz (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Spectroscopic investigations of the extreme subdwarf binary system G 224-58 AB (**12+3**)

- 15.00-15.15** Vitalii Breus, K. Petrik, S. Zola, A. Baransky, T. Hegedus (*Odessa National Maritime University, Odessa, Ukraine*) On the orbital period of the intermediate polar V2306 Cygni (**12+3**)
- 15.15-15.30** Oksana Ivaniha, O. Pavlenko, N. Pit, K. Antonyuk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Search of the periodic processes of the SU UMa-type dwarf nova Ursa Majoris in 2013 year (**12+3**)
- 15.30-16.00** **tea-break**
- 16.00-16.15** Natalia Virnina, F. Martinelli, M. Mogoryan (*Odessa National Maritime University, Odessa, Ukraine*) Modeling of Newly Discovered Pre-Contact Binary Star USNO B1.0 1240-0526950 (**12+3**)
- 16.15-16.30** Nadiia Maslova, N. Virnina, T. Krajci (*Odessa Mariinsky High School, Odessa, Ukraine*) Distribution and Kinematics of Cepheids in the Milky Way Galaxy (**12+3**)
- 16.30-16.45** Oleh Buhajenko, B. Ja. Melekh (*Ivan Franko National University of Lviv, Lviv, Ukraine*) Calculation of diffuse ionization radiation by emissivity and opacity maps using DiffRay (**12+3**)
- 16.45-16.50** Marina Galunka, N. Virnina, T. Krajci (*Odessa Mariinsky High School, Odessa, Ukraine*) Study of five newly discovered eclipsing binary stars (**poster**)
- 16.50-16.55** Sergii Pokhvala (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) High-frequency variations in hydrogen spectral lines of the B type star Eta UMa (**poster**)
- 16.55-17.00** Sergii Pokhvala, B. E. Zhilyaev (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) High-frequency variations of spectral lines in the chromospherically active stars of BY Dra type (**poster**)
- 17.00-17.05** Alisa Shchurova, E. Pavlenko, V. Malanushenko, O. Antonyuk, A. Sosnovskij, N. Pit (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Light curve of the dwarf nova V503 Cyg: normal outbursts, super-outburst and their features (**poster**)
- 18.30-21.00** **Excursion to the Main Astronomical Observatory of the National Academy of Sciences of Ukraine**

Tuesday, April, 21

Section ‘Extragalactic Astrophysics & Cosmology’

Chair: Dmytro Iakubovskiy

Room 103

09.00-09.30 **morning coffee**

- 09.30-10.15** Bogdan Wszolek (*Institute of Physics, Jan Długosz University in Częstochowa, Poland*) New live of radiotelescopes from Psary and Komorowo (**invited**)
- 10.15-10.30** Inna Yatsun, Y. I. Izotov (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The chemical composition of Oxygen and Sulfur in galaxies in the data of the Sloan Digital Sky Survey (**12+3**)
- 10.30-10.45** Olena Torbaniuk, G. Ivashchenko (*Taras Shevchenko National University of Kyiv, Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Measurement of the Ly α -forest transmission from the SDSS DR10 quasar spectra (**12+3**)

- 10.45-11.00** Alexander Baransky, A. Simon, D. I. Vidish, A. I. Vorontseva (*Astronomical Observatory of Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The catalog of morphological types of rich PF galaxy clusters (**12+3**)
- 11.00-11.05** Alla Gotsulyak, S. M. Andrievsky, E. A. Panko (*Odessa I. I. Mechnikov National University, Odessa, Ukraine*) The catalog of morphological types of rich PF galaxy clusters (**poster**)
- 11.05-11.10** Valentyna Sadova, D. Iakubovskiy (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Identification of the optimal object observations to confirm the nature of the line at 3.5 keV (**poster**)
- 11.10-11.15** Ganna Donskykh, M. I. Ryabov, A. L. Sukharev, M. F. Aller (*Odessa I.I.Mechnikov National University, Odessa, Ukraine*) Using the methods of wavelet analysis and singular spectrum analysis in the study of radio sources 3C345, OJ 287, CTA102 and 3C446 (**poster**)
- 11.15-11.45** **tea-break**
- 11.45-12.00** Artem Hradyskiy, O. M. Kopteva (*Oles Honchar Dnipropetrovsk National University, Dnipropetrovsk, Ukraine*) Rotational curve of spiral galaxy in Stephanie metric (**12+3**)
- 12.00-12.15** Yuriy Taistra, V. O. Pelykh (*Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of the National Academy of Sciences of Ukraine, Lviv, Ukraine*) Null solutions of Maxwell equations in Kerr space-time (**12+3**)
- 12.15-12.30** Margaryta Sobolenko, P. Berczik (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Black holes merging at the centres of interacting galaxies: coalescence time estimation (**12+3**)
- 12.30-12.45** Maksym Tsizh, B. Novosyadlyj (*Astronomical Observatory of Ivan Franko National University of Lviv, Lviv, Ukraine*) Dynamics of dark energy in collapsing halo of dark matter (**12+3**)
- 12.45-13.00** Anton Rudakovskiy, D. Iakubovskiy (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Reionization in cold, warm, cold+warm dark matter model (**12+3**)
- 13.00-13.15** Iryna Ivanchenko, V. M. Gorkavenko (*Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Vacuum effects in the presence of a finite thickness magnetic tube (**12+3**)
- 13.15-13.30** Maria Khelashvili, B. Hnatyk, L. Zadorozhna (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Synchrotron radiation from the bow shock around the magnetosphere of superconducting cosmic string (**12+3**)
- 13.40-14.40** **lunch**
- 15.00-19.00** **City tour (walking tour)**

Wednesday, April, 22

Section ‘Solar Physics’

Chair: Oleksiy Ivanyuk
Room 103

09.00-09.30 **morning coffee**

- 09.30-09.45** Ann Tkachenko, N. I. Lozitska (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Flare and sunspots statistics comparison: investigating flare prediction possibilities (**12+3**)

09.45-09.50 Antonina Klyuyeva, B. A. Shakhov, Yu. L. Kolesnyk, Yu. I. Fedorov (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) The model of galactic cosmic rays distribution near the Earth's orbit under the interaction with quasi-stationary stream of fast solar wind (**poster**)

09.50-09.55 Antonina Klyuyeva (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Main features of Forbush effects caused by various sources of solar wind disturbances (**poster**)

09.55-10.00 Valeria Lyakh, V. G. Lozitsky (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Magnetic field diagnostics in solar faculae using BSF method (**poster**)

Section 'Atmospheric studies and space geophysics'

Chair: Oleksiy Ivanyuk

Room 103

10.00-10.45 Gennadi Milinevsky (*Taras Shevchenko National University of Kyiv, Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) Remote sensing of aerosol in the terrestrial atmosphere (**invited**)

10.45-11.00 Evgeny Udodov, A. Shavrina, G. Milinevsky, E. Venger, Ya. Romanyuk, I. Syniavsky, V. Kyslyi, A. Liptuga (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Improving troposphere ozone height profiles by combined FTIR and Umkehr methods (**12+3**)

11.00-11.15 Vladislav Mogylchak, G. Milinevsky (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Spatio-temporal features of stratosphere ozone distribution over Ukraine by 1979-2014 satellite data (**12+3**)

11.15-11.30 Andrew Prokhorenkov, L. V. Kozak, A. T. Y. Lui (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Statistical analysis of the transition processes in the Earth's magnetosheath (**12+3**)

11.30-12.00 tea-break

12.00-12.15 Igor Gala, L. V. Kozak, A. Prokhorenkov, A. T. Y. Lui (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Transfer processes in the transition layer of solar wind and the Earth's magnetosphere (**12+3**)

12.15-12.30 Eugen Tkachenko, Yu. Rapoport, Yu. Selivanov, V. Ivchenko (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) Propagation of planetary electromagnetic waves and atmospheric-gravitational waves in the Earth's ionosphere, theory and modeling (**12+3**)

12.30-12.45 Abid Ali Abid, S. Ali, R. Muhammad (*Federal Urdu University of Arts, Science and Technology, National Center for Physics, Islamabad, Pakistan*) Dust grain surface potential in a non-Maxwellian dusty plasma with negative ions (**12+3**)

12.45-12.50 Yulia Yukhimchuk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) The ozone mini-holes and antymini-holes in stratosphere over Kyiv during 2010–2015 (**poster**)

13.00-14.00 lunch

17.45-22.00 Organ hall / opera hall / etc.

Thursday, April, 23

Section 'High Energy Astrophysics'

Chair: Ievgen Vovk
Room 103

09.00-09.30 morning coffee

09.30-10.15 Ievgen Vovk (*Werner-Heisenberg-Institut, Max-Planck-Institut für Physik, Munich, Germany*) *On the nature of the gamma-ray emission of Active Galactic Nuclei (invited)*

10.15-10.30 Anton Dmytriiev, A. Neronov, S. Toscano (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Study of TeV blazar Mrk 421 with the Cherenkov telescope FACT (12+3)*

10.30-10.45 Anatoliy Tugay, V. Sadova (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *A model of X-ray emission of Seyfert 1 galaxies (12+3)*

10.45-11.00 Taras Kuzyo, O. Petruk, V. Beshley (*Ivan Franko National University of Lviv, Lviv, Ukraine*) *The MF strength estimation from the nonthermal X-ray radial profiles of Tycho SNR (12+3)*

11.00-11.15 Roman Gnatyk (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Search for the sources of the ultra high energy cosmic rays with energies above 10^{20} eV (12+3)*

11.15-11.45 tea-break

11.45-12.00 Iryna Boiarska, D. Iakubovskiyi (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Determination of Astro-H sensitivity with respect to the unidentified line at 3.5 keV (12+3)*

12.00-12.15 El Miloudi El Moussafir (*Université Hassan II Mohammedia, Casablanca, Morocco*) *Characterization of lead titanate thin films prepared by sol gel process (12+3)*

12.15-12.20 Kateryna Sukach, A. Bohdan, V. Marchenko (*Taras Shevchenko Chernihiv National Pedagogical University, Chernihiv, Ukraine*) *Analysis of spatial and temporal and spatial properties of object near Centaurus A (poster)*

12.20-12.25 Pavlo Plotko, I. G. Slyusarev, V. G. Shevchenko, Y. N. Krugly, V. G. Chiorny (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *The optical afterglow of gamma-ray burst GRB130427A (poster)*

12.25-12.30 Lidiia Zadorozhna, B. Hnatyk, M. Khelashvili (*Taras Shevchenko Chernihiv National Pedagogical University, Chernihiv, Ukraine*) *Fast radio bursts as electromagnetic radiation from cusps on superconducting cosmic strings (poster)*

13.00-14.00 lunch

Friday, April, 24

Section 'Solar System & Exoplanets'

Chair: Kateryna Frantseva
Room 102

09.00-09.30 morning coffee

09.30-10.15 Oleksiy Golubov (*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*) *Yarkovsky and YORP effects: importance of non-gravitational forces for asteroid's evolution (invited)*

- 10.15-10.30** Ulyana Pyrohova, O. Golubov (*V. N. Karazin Kharkiv National University, Kharkiv, Ukraine*) *Dependence of the YORP effect on the asteroid shape (12+3)*
- 10.30-10.45** Mahesh Herath, T. Van Hoolst (*Katholieke Universiteit Leuven, Leuven, Belgium*) *An approximate measurement of the love numbers and tidal effects of Neptune on Triton (12+3)*
- 10.45-11.00** Serhii Yasenev (*National Aviation University, Kyiv, Ukraine*) *Analysis of self-gravitating satellites of the planets in the Solar System (12+3)*
- 11.00-11.15** Olena Shubina, O. Ivanova, N. N. Kiselev, V. L. Afanasiev (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Photometric and spectral investigation of the comet 103P/Hartley-2 (12+3)*
- 11.15-11.30** Alexander Baransky, V. I. Zhdanov (*Astronomical Observatory of Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *14P/Wolf, 15P/Finlay, 16P/Brooks 2 and 21P/Giacobini-Zinner comets' disintegration study (12+3)*
- 11.30-11.45** Kateryna Frantseva, M. Mueller, F. Van der Tak, F. P. Helmich (*SRON Netherlands Institute for Space Research, Kapteyn Astronomical Institute, RUG, Groningen, Netherlands*) *Delivery of organic material and water to planets through asteroid impacts (12+3)*
- 11.45-11.50** Sergii Zaitsev, N. Kiselev, V. Rosenbush, S. Kolesnikov (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) *Polarimetry of saturnian satellite Rhea (poster)*
- 11.50-11.55** Volodymyr Troianskyi, O. A. Bazyey (*Astronomical Observatory of Odessa I.I. Mechnikov National University, Odessa, Ukraine*) *Effect of nonsphericity of gravitational field of the asteroid on the its satellites orbits evolution (poster)*
- 11.55-12.00** Larysa Rohachova, Y. G. Shkuratov, V. V. Korokhin, V. G. Kaydash, Y. I. Velikodsky, D. G. Stankevich, G. Videen (*V.N. Karazin Kharkiv National University, Kharkiv, Ukraine*) *Ejecta deposits of Copernicus crater (poster)*
- 12.00-12.05** Volodymyr Vasylenko, A. Simon, M. Andreev, V. Godunova, V. Reshetnyk, O. Sergeev, W. Thuillot (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Observations of near-Earth asteroids at Lisnyky and Terskol from 2013 to 2015 (poster)*
- 12.05-12.10** Vasyl Ponomarenko, A. Simon, K. I. Churyumov (*Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *Spectral investigation of gas and dust atmosphere of comet C/2014 Q2 (Lovejoy) (poster)*
- 12.10-12.15** Alona Mozgova (*Astronomical Observatory of Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*) *A possible physical mechanism of meteor flares (poster)*
- 12.15-12.20** Yana Shliakhetska, Y. Kuznyetsova, V. Krushevskaya, A. Vidmachenko (*Main Astronomical Observatory of the National Academy of Sciences of Ukraine, Kyiv, Ukraine*) *Chromospheric activity of stars in systems with exoplanets based on photometric observational data (poster)*
- 12.20-13.20** **Poster section + tea-break**
- 13.20-13.50** **Official closure**
- 14.00-15.00** **lunch**

Saturday, April, 25

- 08.30-12.00** Excursions to Kyiv-Pechersk Lavra
- 13.00-15.00** Museum of Folk Architecture and Life of Ukraine