

"Planetary research and the search for life beyond the Earth"

Conference Program

Monday, October 23 (Kyiv time, 1 h difference with Central European Time, 2hs with Edinburgh)

11.00 a.m.-15.45 p.m.

Section Astrobiology, Institute of Molecular Biology and Genetics of NAS of Ukraine

11.00. Mykhailo Tukalo. Director of Institute of Molecular Biology and Genetics of NAS of Ukraine. Welcome message.

11.10. Charles Cockell. University of Edinburgh, UK. Introduction to the conference.

11.20. Yaroslav S. Yatskiv. Director of Main Astronomical Observatory of NASU of Ukraine. Greeting message.

11.30. Jean-Pierre P. de Vera. President of the European Astrobiology Network Association. Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany. Greeting message.

11.40. Oleh P. Fedorov. Director of Institute of Space Research of NASU/SSAU. Greeting message.

12.00-12.30. Jean-Pierre P. de Vera. Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany. What is a biosignature and how to detect life? – An answer from a Biologist.

12.30-13.00. Tea/Coffee time

13.00-13.20. Charles Cockell. University of Edinburgh, UK. The limits of life in the biosphere.

13.20. Yuliana Kuznetsova. The Main Astronomical Observatory of NAS of Ukraine. Astrophysics in the search for signs of extraterrestrial life in the Solar System and beyond.

13.40-14.30. Lunch time.

14.30. Daniella Billi. University of Rome Tor Vergata, Italy. Cyanobacteria as a tool to explore the limit of life as we know it.

14.45. Maria Teresa Muscari Tomajoli. Parthenope University of Naples, Italy. Physiological adaptations of the brine shrimp *Artemia salina* to simulated space parameters: a model for astrobiological studies.

15.00. Sean McMahon. UK Centre for Astrobiology, School of Physics and Astronomy & School of GeoSciences, University of Edinburgh, UK. Cautionary tales in the search for life on Mars?

15.15. Tanya Borisova. The Palladin Institute of Biochemistry NAS of Ukraine. Neurotoxicity of particles of planetary and interstellar dust and the express assessment method.

15.30. Mykhailo Orlyuk. Institute of Geophysics of NAS of Ukraine. SARS-CoV-2 virus spreads depending on the geomagnetic field and solar activity.

15.45. Natalia Kozyrovska. Institute of Molecular Biology and Genetics of NAS of Ukraine. Survivability of the Earth-like biosignatures.

16.00. Kombucha party.

Tuesday, October 24. Round table

11.00 a.m.-13.00 p.m., CET+1h

Extraterrestrial organics and the origin of life

- Sean McMahon. UK Centre for Astrobiology, School of Physics and Astronomy & School of GeoSciences, University of Edinburgh, UK. An ancient evidence of life. Identical/non-identical to terrestrial organisms; organics and their biosignatures.
- Yuliana Kuznetsova. Main Astronomical Observatory of NAS of Ukraine. Remote identification of organics.
- Charles Cockell. University of Edinburgh, UK. How organics can be processed in space in any practical ways to support human activity in space (*e.g.*, using carbonaceous materials from asteroids).
- Inge Loes ten Kate. Utrecht University, Amsterdam University, The Netherlands. Extraterrestrial organics and the origin of life.
- Natalia Kozyrovska. Institute of Molecular Biology and Genetics of NAS of Ukraine. Earthly extracellular membrane vesicles and extraterrestrial nanoglobules: a putative role in the origin of life.

13.00 Tea/Coffee Time

Wednesday, October 25

Section Planetary Research

The Main Astronomical Observatory of the National academy of sciences of Ukraine

10.00 a.m. – 12.15 p.m.

10.00 – 10.20. Opening ceremony

Yaroslav Yatskiv. Main astronomical observatory of NAS of Ukraine, Ukraine.

Welcome and opening remarks.

Charles Cockell. University of Edinburgh, UK. Interconnection of biology and astronomy.

10.20–10.40: **Oleksandra Ivanova.** Astronomical Institute of Slovak Academy of Sciences in Tatranská Lomnica. Slovak Republic. "Physical properties of the comets showing considerable activity beyond snowline".

10.40–11.00: **Yurij Krugly.** Institute of Astronomy, V.N. Karazin Kharkiv National University, Ukraine. "Photometry and polarimetry of near-Earth asteroids".

11.00–11.20: **Ákos Kereszturi.** Konkoly Thege Astronomical Institute, Research Centre for Astronomy and Earth Sciences, HUN-REN, Budapest, Hungary

"Meteorite irradiation to test cosmic weathering consequences on asteroid surfaces".

11.20–11.40: **Oleksiy Golubov.** Institute of Astronomy. V.N. Karazin Kharkiv National University, Ukraine. "Evolution of asteroids under the YORP effect".

11.40–12.00: **Yehor Surkov.** Institute of Astronomy, V.N. Karazin Kharkiv National University, Ukraine / Max plank Institute for solar system research, Germany.

"New methods of the lunar mineralogical investigations using orbital spectrophotometry".

12.00–12.15: **Nadia D. BOPPART**, Department of Earth Sciences, The University of Hong Kong, Hong Kong, China. “Paleolakes on Mars – Time Capsules to the past, present and possible future”.

Thursday, October 26

10 a.m. – 12 p.m.

10.00–10.20: **Olga Zakhozaj**. Main Astronomical observatory of NAS of Ukraine. Ukraine. “Radial Velocity Survey for Planets around Young stars (RVSPY) A transiting warm super-Jovian planet around HD 114082, a young star with a debris disk”.

10.20–10.35: **Yakiv Pavlenko**. Main astronomical observatory of NAS of Ukraine Ukraine/Instituto de Astrofísica de Canarias , Spain. “Are exocomets alike solar system comets?”

10.35–10.50: **Daria Dobrycheva**. Main astronomical observatory of NAS of Ukraine Ukraine. “AI to search for extrasolar comets: first experience from the application of ML to the TESS database”. Main Astronomical Observatory of NAS of Ukraine, Ukraine.

10.50–11.05: **Ihor Kyrylenko**. Institute of Astronomy, V.N. Karazin Kharkiv National University, Ukraine. “Discovery of asteroid pairs”.

11.05–11.20: **Valeriya Rychahova**. Institute of Astronomy. V.N. Karazin Kharkiv National University, Ukraine. “Anomalous areas on the surface of asteroid Vesta”.

11.20-11.35: **Kateryna Kulish**. Division of Astronomy and Astrophysics, Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovak Republic. “Photometry, polarimetry, spectrometry of the comet of the Jupiter family 108P”.

11.35–11.50: **Angelina Voitko**. Astronomical Institute of Slovak Academy of Sciences in Tatranská Lomnica. Slovak Republic. "Photometry of comets C/2016 M1 and C/2020 S4 (PanSTARRS)".

11.50–12.00: Discussion. Concluding remarks.