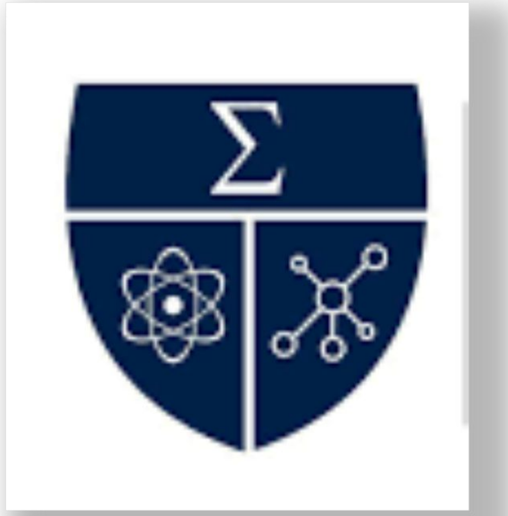


Astronomy

in Odesa I.I. Mechnikov National University

Elena Panko

SRI “Astronomical Observatory” and
Department of Physics and Astronomy

Scientific directions and School:

Celestial mechanics and dynamics of the Solar System;
Physics and evolution of the stars;
Photometry and spectrophotometry, polarimetry;
Chemical evolution of the stars and the Galaxy;
Theoretical and observational cosmology;
Meteor astronomy;
Astro-instrumentation.

Department of Astronomy (AD):

- At present (due to martial law), the Department of Physics ans Astronomy, Faculty of Mathematics, Physics and Information Technologies, Odesa I.I. Mechnikov National University, Ministry of Education and Science of Ukraine
- AD was founded in **1865,** the founder was Master of Astronomy L. F. Berkevych (the Master's degree in Tsar Russia corresponds to the modern PhD degree). AD works closely with SRI “Astronomical Observatory” ONU (the long history needs a separate presentation).
- Key scientific directions are: the dynamics of the near-earth objects and small bodies of the Solar system; the physics of the variable stars; extragalactic astronomy and radioastronomy. New exoplanet transits.

Department of Astronomy (AD):

- Collaboration with Ukrainian astronomical organizations. The special collaboration with N.D.Kalinenkov Astronomical Observatory, Admiral Makarov National Shipbuilding University, Pedagogical Institute, and Odesa Department of the Radioastronomical Institute NASU.

- Collaboration with astronomers from Poland (Opole University), Slovakia (The Astrophysical Institute of the Slovak Academy of Science, The Vihorlat Observatory in Humenné), Latvia (Ventspils International Radio Astronomy Centre), and Canada, (Snt Mary's University, Halifax, NC)

Academic programs:

- ***Schoolchildren:***
- **Astronomical Olympiads** (Odesa and Mykolaiv regions). Odesa region: V. Marsakova knows more. Mykolaiv region: 20 wineries of the final Ukrainian Olympiad, the winner of the International astronomical Olympiad, 2024: E. Panko can tell more.
- *Junior Academy of Sciences* of Ukraine, winners from Odesa, Mykolaiv, and Dnipropetrovsk regions, supervisor from I.I. Mechnikov ONU (V .Marsakova, O. Bazyey, E.Panko).

NB. Evolution of the Department's members was from 3 lecturers + support staff before the war to 1 lecturer at present. We lost our academic potential. We lost our students. It’s a common direction for all departments. We lost our future.

Academic programs:

- *Bachelor*'s program, with basic astronomical courses (~ 3 students her year, pre-war up to 10).
- Master's program, with advanced astronomical courses (2 – 3 students, pre-war up to 5). Master's program for China students, Physics direction.
- •PhD program, the preparation (1 student per 2 years, the last defense was in 2024, S.I.Yemelianov. pre-war 1 student per year)
- ScD students - upon request (V.V. Troianskyi).

On-line and offline teaching.

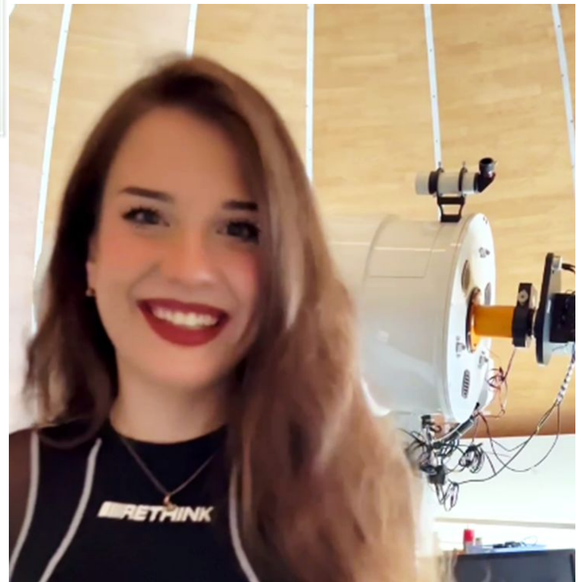
- **Mayaki Station is the base of Students' practices and the Thesis preparation.**

Academic Mobility:

- Angelina Voitko, 2018, Pavol Josef Safarik University in Kosice, Slovakia

- Dmytro Tvardovskii, 2019, Université de Moncton, Canada

- Anastasia Pechko, 2025, Nha Trang Observatory, Vietnam National Space Center



Science of AD:

- Formal topic, which is registered, is “Morphology and dynamics of multicomponent cosmic systems”.

The goals are: the study of the features of the observational distribution and properties of multi-component systems and calculations of the features of motion in systems of three or more bodies on different spatial and time scales. The largest scale values p estimates of galaxy clusters and galaxies, intermediate ones provide estimates for the parameters of stars within the Galaxy, binary stars, systems with an additional component or extrasolar planetary systems, the smallest scale concerns the study of the motion of bodies in the Solar System, including potentially dangerous asteroids approaching the Earth, as well as spacecraft.

- Cluster Cartography

Priority needs

- Stable targeted funding for the department's lecturers (both scientific and academic direction). Currently, lecturers are overloaded with teaching due to the reduction of positions. We lost human resources.
- Stable funding and support for scientific mobility both students and lecturers.
- Standard legal modern software (Maxim DL, for example, etc) for students, like the Wolfram Mathematica, which the department obtained in “for student” form.
- Professional equipment for photometry (Like as CCD Andor’s iKon-M 934 + standard light filters)
- Potential areas for collaboration (e.g. Erasmus+, training, co-teaching, joint proposals, joint research, staff exchanges)

Department of Mathematics, Physics, and Astronomy

Odessa National Maritime University, Institute of Information Technologies and Innovative Management

- Powerful astrophysics group under the leadership of Ivan Andronov (prof., Head of Department).
  Our friendly Department.

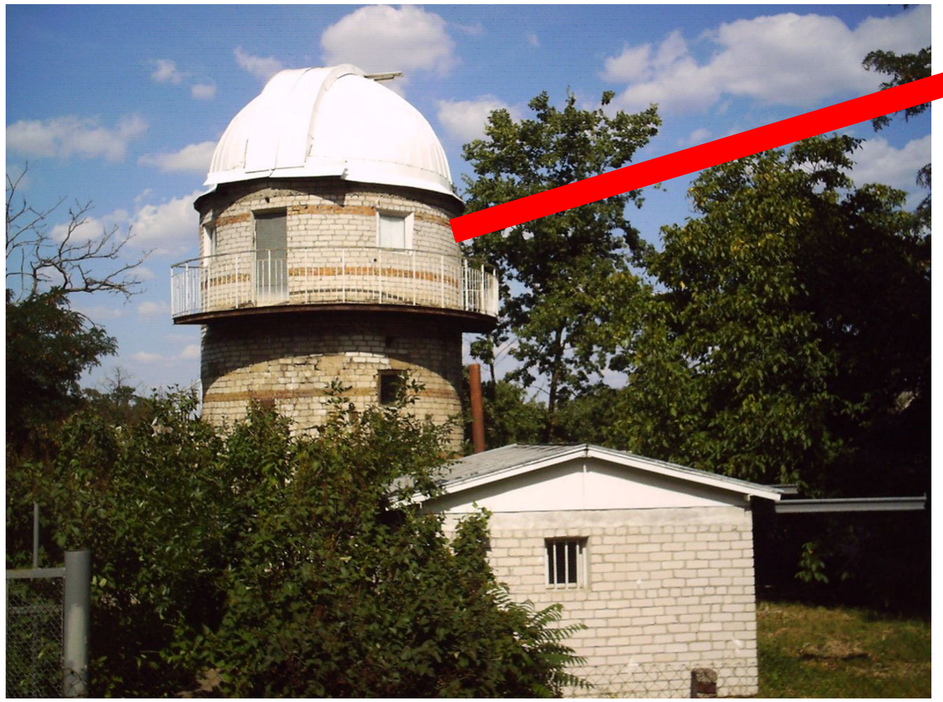
- Katherina Ahdrych (at present in Australia), Dmytro Tvardovskii (at present in Canada) were ONU students, but they worked in collaboration with Ivan Andronov Groupe.

  V. Marsakova can tell more.

Kalinenkov Astronomical Observatory, AOK

- Long time collaboration in CBS observations, GRB counterpart program (nineties of the last sentury), comets, etc.

ZTS-702, D=702 mm, F=2850 mm (and 13 m и 68 m). BVRI and SBIG SSD ST -7 (so old).



The dome was was damaged in a missile attack

Priority needs: mechanic recovery, modern CCD, targeted funding. **Elena Panko can tell more.**

The next part is **SRI “Astronomical Observatory”**