Astronomical Observatory and Astrophysics Department of of Ivan Franko National University of Lviv

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Institute overview

Full name:	
Location, parent organisation:	8, Kyryla 7, Nova Ivan Fra
Year established and key mission:	1771, as
Core areas of astronomical research:	 Cosmo Solar p Physics Near Ea
Role in Ukraine's national research ecosystem:	 Regula Regula Particip Popula



Astronomical Observatory of Ivan Franko National University of Lviv

- & Metodia str., Lviv,
- str., v. Bruckovychi, Lviv, Ukraine,
- nko National University of Lviv
- stronomical researches and education
- logy and high-energy astrophysics
- hysics
- s of variable stars
- arth space and satellites
- ar all-Ukrainian online seminar or conferences (every 2-3 years) pation in join observational programms rization of astronomy, excursions







Lviv city observatory used for education of students and excursions (8, Kyryla & Metodia str., Lviv, Ukraine)



Pre-war capacity and international role

Staff structure (researchers, engineers, admin):	12
Main infrastructure (e.g. telescopes, data centres, laboratories):	•C •S fi •1 •2
International collaborations, consortia memberships:	Ch Int
Major scientific outputs and achievements:	•P ir •C fc •R



- 2 researches, 12 engineers, 2 admin
- Cassegrain 50 cm mirror telescope AZT-14,
- Solar chromosphere-photosphere refractor with interference-polarimetry ilter,
- m mirror laser ranger telescope TPL-1M,2
- 25 cm Celestron Schmidt-Cassegrain telescope
- nerenkov Telescope Array Observatory (CTAO) Consortium ternational Laser Ranger Service
- Physics of solar atmosphere: semi-empirical methods for analysis of nhomogeneous solar atmosphere
- Cosmology: constraints of cosmological parameters and structure ormation scenarios
- Relativistic astrophysics: numerical models of super novae remnants and cosmic ray acceleration





Suburb observational station of Astronomical observatory (7, Nova str., v. Bruckovychi, Lviv, Ukraine)



Impact of the war

Physical damage to facilities or observatories:	No damage to f
Personnel safety or displacement issues:	10% of researcl
Disruption of research and international collaborations:	 Restrictions on Some research The exclusion of supported by set
Emergency measures taken:	Purchased a gas



facilities and observatory

hes mobilized, 10% of researches are abroad

- the academic mobility for researchers of conscription age
- nes are disrupted
- of fundamental research not focused on defense from the priority areas tate grants
- soline electricity generator for cases of electricity blackouts

Current status and priority needs

What has resumed or remains active:	All facilities are
Short-term and long-term recovery priorities:	 Short-term: Human resourd researchers to researchers to a purposes. Recover the or burposes. Recover the or burg-term: Recover the or burg-term: Recover the or burg-term the or burget bu
Gaps in funding, technical infrastructure, and human resources:	Gaps in funding human resource



e active, but most from them need re-innovation.

rces strengthening of scientific departments, increasing the number of \sim 16 from the graduates of the Department of Astrophysics.

bservations of active processes on the Sun for scientific and educational

peration of a satellite laser ranger.

peration of a vertical solar telescope with a double reflection spectrograph d educational purpose.

project of creating a remotely controlled telescope based on an 80-cm licci-Chrétien system.

g results into gaps in technical infrastructure, low salaries result into lack of es



Strategic vision and collaboration opportunities

Vision for recovery and development in the next 3-5 years:

Potential contributions to international networks:

Specific needs and proposals for partnership (e.g. joint research, equipment, staff exchanges):



- Stable basic funding for the maintenance and development of infrastructure and maintenance of technical and scientific-administrative personnel (heads of scientific departments).
- Competitive funding from national and European funds.
- Human resources strengthening of scientific departments, increasing the number of researchers to ~20-25 from the graduates of the Department of Astrophysics.
- Recover the observations of active processes on the Sun for scientific and educational purposes.
- Recover the operation of a vertical solar telescope with a double reflection spectrograph for science and educational purpose.
- Implement the project of creating a remotely controlled telescope based on an 80-cm mirror of the Ricci-Chrétien system.
- Recover the operation of a satellite laser ranger.
- Prediction and analysis of radio signals from the Dark Ages and the Cosmic Dawn (UTR-2, LOFAR, SKA).
- . Research on Galactic cosmic ray accelerators. Development of observation strategies for forthcoming gamma-ray observatory CTAO and close cooperation with radio instruments such as LOFAR and SKA
- Observation and analysis of variable stars and active processes on the Sun.
- . Join research in all mentioned area











Department overview

Full name:	
Location, parent organisation:	8, Kyryla Ivan Fra
Year established and key mission:	1996, as
Bachelor programs offered:	Astrophy
Master program offered:	Theoretic
PhD program offered:	Astrophy
Core areas of astronomical research and student involvement:	Nebular a
Role in Ukraine's national research ecosystem:	Regular Regular Higher e Regiona



Astrophysics Department

- a & Methodia St., Lviv, Ukraine nko National University of Lviv
- stronomical education and research
- vsics and Space Physics (starting at September 2025)
- cal Physics and Astrophysics
- sics and Space Physics
- astrophysics, Physics of dwarf galaxies, Stellar physics, Orbital mechanics.
- nationwide online seminars conferences (every 2-3 years) ducation in Astronomy, Astrophysics, and Space Situational Awareness I and national school-level astronomical olympiads





Pre-war teaching, research capacity and international role

Staff structure:	Head of department, 1 full professor, 3
Number of students:	10-15 students each year, 5–10 ent
Main infrastructure:	Teaching computer laboratory . The Astronomical Observatory of the U
International collaborations, memberships:	 Collaborations: Institute for Astronomy of Vienna Un Vihorlat Observatory, Slovakia (training) It would be highly beneficial to expanse specially in the field of space situation Memberships: Most of the department's employees are
University-level support or partnerships:	 The University funded the renovation of and provided the computer lab with approved. This year, the University financed the exact of th



Astrophysics Department

associate professors, 1 engineer, 1 Senior Lab Assistant.

ter the Master's program, and up to 5 join the PhD program.

niversity serves as the practical training base for students of astrophysics.

niversity (nebular astrophysics) ng programs for our students, as well as internships) nd internship opportunities for students in EU astronomical centers, nal awareness (SSA)

e members of the IAU

of the department's premises, equipped classrooms with multimedia systems, opriate hardware.

xpansion of the computing cluster from 11 to 23 nodes.

orograms include:

versity

National Academy of Sciences of Ukraine (Kyiv)

d Problems of Mechanics and Mathematics (NAS of Ukraine)



Impact of the war

Impact on students, faculty, and study programs:	Main chal
	– Studen
	– Loss of
	– Stress
	Current st still occur
	In 2025, th Space Phy also on sp
Infrastructure damage and teaching disruptions:	Absents



llenges at the start of full-scale invasion:

- t relocation (within Ukraine & abroad)
- contact with some students families in occupied areas
- & need for psychological support
- tatus: Life is mostly back to normal, though occasional air-raid alerts r, so psychological support remains necessary.
- he department launches a new Bachelor's program "Astrophysics and ysics", which includes a strong focus not only on astrophysics but pace situational awareness.



Current status and priority needs

Ongoing teaching and research:	Impact of End — Delays in co — Inoperability
	Response: – UPS system
	Still Needed: – Powerful die – Solar power
Gaps in funding:	Funding Cha – State suppo – Astronomers and education importance fo



Astrophysics Department

ergy Attacks:

omputational modeling. / of lab and lecture equipment.

ns installed in key facilities.

esel generators.

plant.

llenges:

ort for fundamental research has declined under martial law. s engage in space situational awareness (SSA) in both research n. Unfortunately, SSA remains underfunded despite its r science and global security.



Strategic vision and collaboration opportunities

Vision for recovery and development in the next 3-5 years:	 Corstuction Stuction Ensignation Searching S
Strategic goals for rebuilding and modernising education and research:	 In tl "As The nee
Potential areas for collaboration:	1. Er supp 2. Im unive



Astrophysics Department

- ntinuing the promotion of astronomy and astrophysics among school dents to ensure sufficient enrollment in our educational programs. suring the possibility of delivering our educational programs in English all levels.
- arching for EU grants to support the delivery of our educational grams at the international level.
- banding the network of stakeholders for the department's educational grams both in Ukraine and abroad to facilitate the swift and accessful employment of graduates.
- velopment of an efficient database of modeling results to accelerate search for optimal models of astrophysical objects and artificial estial bodies.
- egrating machine learning methods into both scientific research and educational process.
- he coming years, the launch of a new Master's educational program trophysics and Space Situational Awareness" is planned. e computing capacity of both the department and the observatory eds to be expanded.
- **rasmus+** program for students (currently active, requires continued ort).
- plementation of joint **Erasmus Mundus Master's programs** at the ersity in fields such as astrophysics and space situational awareness.



Thank you for your attention!