

Astronomy in Ukraine: landscape, resilience, and the impact of war



**Ukrainian
Astronomical Association (UAA)**

Yaroslav Yatskiv, Iryna Vavilova, and Ihor Lukianyk

June 12, 2025, Leiden Observatory

- 
- Scientific research in astronomy was started in the XVIIIth century with establishment of *University astronomical observatories in L'viv, Kharkiv, Kyiv, Odesa*.
 - In 1821 the *Naval Observatory* was founded in *Mykolaiv* (later on as a department of the Pulkovo Observatory)
 - New impetus for development of astronomical research were connected with the foundation of institutions of the Russian Academy of Sciences (later on the USSR Academy of Sciences) and the *All-Ukrainian Academy of Science* (later on the UkrSSR AS, and the NAS of Ukraine)

Astronomy in Ukraine. Management

Governmental level

Ministry of Education and Science of Ukraine:

- astronomical departments and observatories in universities

National Academy of Sciences of Ukraine

- institutions and observatories

Other management

- planetariums,

Non-Governmental level,

***Private astronomical observatories and facilities,
amateur society***

Ukrainian Astronomical Association



- **In 1991**, as concerning with the acquisition of Independence by Ukraine, the significant changes took place in governmental organizations of our country, including in science and education management.
- The **Ukrainian Astronomical Association (UAA)** was established as a national committee of astronomers, which represents Ukraine in the international organizations, namely IAU and EAS. Through its significant collective role, the UAA helps to promote the interest of Ukrainian astronomy and to define the priorities of research strategies as the Road Map.

Ukraine is a well-known astronomical country in Europe



**Ukrainian
Astronomical
Association
1991 year**

- Main Astronomical Observatory (Kyiv 1944)
- Crimean Astrophysical Observatory (Simeiz 1908; Naukove 1945)
- Institute of Radio Astronomy (Kharkiv 1950-ies)
- Mykolaiv Astronomical Observatory (1821)
- Astronomical Observatory Kyiv Nat. University (1845)
- Astronomical Observatory L'viv Nat. University
- Astronomical Observatory Odesa Nat. University (1871)
- Institute of Astronomy Kharkiv Nat. University
- ICAMER (p. Terskol, North Caucasus, RF, 1970-ies)
- Space research Laboratory Uzhgorod Nat. Univ., 1957

Status of astronomical research institutions before 2014

Institutions	Number of Scientists	Number of Cand. Sci.	Number of Dr. Sci.
Institutions of the National Academy of Sciences of Ukraine (NASU)			
Main Astronomical Observatory of NASU www.mao.kiev.ua	102	52	20
Institute of Radio Astronomy of NASU www.ri.kharkov.ua	168	55	17
Laboratory of Astrophysics and Cosmology of Bogolyubov Institute of Theoretical Physics of NASU http://www.bitp.kiev.ua/en/aep/staff.html	6	4	1
International Center for Astronomical, Medical, and Ecological Research of NASU http://www.terskol.com/	20	8	1
Institutions of the Ministry for Education and Science of Ukraine			
SRI "Crimean Astrophysical Observatory" www.crao.crimea.ua	86	33	16
Astronomical Observatory of Taras Shevchenko National University of Kyiv www.univ.astro.kiev.ua	26	19	6
Astronomical Observatory of I.Franko National University of L'viv http://astro.franko.lviv.ua/	22	5	2
SRI "Astronomical Observatory" of I.I. Mechnikov National University of Odessa http://www.astro-observ.odessa.ua/	61	14	5

Status of astronomical research institutions before 2014

SR Institute of Astronomy of V.N. Karazin National University of Kharkiv http://ru.astron.kharkov.ua/	32	15	6
SRI “Nikolaev Astronomical Observatory” http://www.nao.nikolaev.ua/	15	8	1
Laboratory of Space Researches of the Uzhgorod National University http://www.univ.uzhgorod.ua/static/ndi/pndl/	12	3	0
Department of High and Applied Mathematics, Odessa National Maritime University http://www.osmu.odessa.ua/application/page?name=vpm	7	3	1
Department of Astronomy and Space Physics, Taras Shevchenko National University of Kyiv http://space.univ.kiev.ua/viewpage.php?page_id=1	21	9	2
Department of Astrophysics of I. Franko National University of L'viv http://www.physics.lnu.edu.ua/depts/KAF/index.htm	10	3	2
Department of Astronomy of I.I. Mechnikov National University of Odessa http://onu.edu.ua/uk/structure/faculty/phys/astronomy	8 (7)	4	2 (1)
Department of Astronomy of V.N. Karazin National University of Kharkiv http://www.univer.kharkov.ua/ua/departments/physics/	8 (3)	4 (1)	3 (0)
Astronomical Institutions of the NAS of Ukraine	296	119	39
Astronomical Institutions of the Ministry for Education and Science of Ukraine	302	117	42
Total	598	236	81

* Post-graduated students are not included in this table

The largest astronomical facilities of Ukraine

Institution	Facilities
Main Astronomical Observatory of the NAS of Ukraine	Twin astrograph (0.4 m), AZT-2 (0.7 m), Horizontal Solar Telescope, SLR, GPS
Crimean Astrophysical Observatory of the MES of Ukraine	ZTSh (2.6 m), AZT-11 (1.25-m), AZT (0.5-m), AZT-8 (0.7-m), AZT (1.0-m), RT-22, GT-48, Solar Tower Telescope, MTM-500
Institute of Radio Astronomy of the NAS of Ukraine	UTR-2, (operating range 8 – 40 MHz; URAN- Network (operating range 10-30 MHz), GURT
Astronomical Observatory of the Taras Shevchenko Kyiv National University	AZT-8, AZT-14, Horizontal Solar Telescope
International Center for Astronomical & Medical-Ecological Research	Zeiss 2000, Zeiss 600, 1-m Solar Telescope
Astronomical Observatory of the I.I.Mechnikov Odesa National University	1-m, two 0.8-m, 0.6-m, two 0.5- m telescopes
Institute of Astronomy of V.N.Karazin Kharkiv National University	AZT-8 (0.7-m)
Mykolaiv Astronomical Observatory of the MES of Ukraine	Axial Meridian Circle, Multi-Channel Telescope, GPS

Ukrainian Astronomical Association

2014 year



The situation worsened even more after the occupation of Crimea by Russia and the unleashing of the Russian-Ukrainian war in the east of Ukraine (Donetsk and Luhansk regions).

This led to the termination of cooperation with Russian astronomers, which traditionally has been very wide.

All these factors resulted, e.g., in the loss of observational facilities –

- Crimean AO of the Shevchenko National University of Kyiv (Observatory in Bakhchisarai, RT-22 and Laser Station in Simeiz)
- Crimean Department (Laser Station) of MAO NASU in Katsiveli,
- RadioAstronomy Department (RT-70) in Yevpatoria of IRA NASU and the National Space Facilities Control and Test Center
- Alchevsk Lazer Station (Luhansk region)

Research institutes & Universities 2025

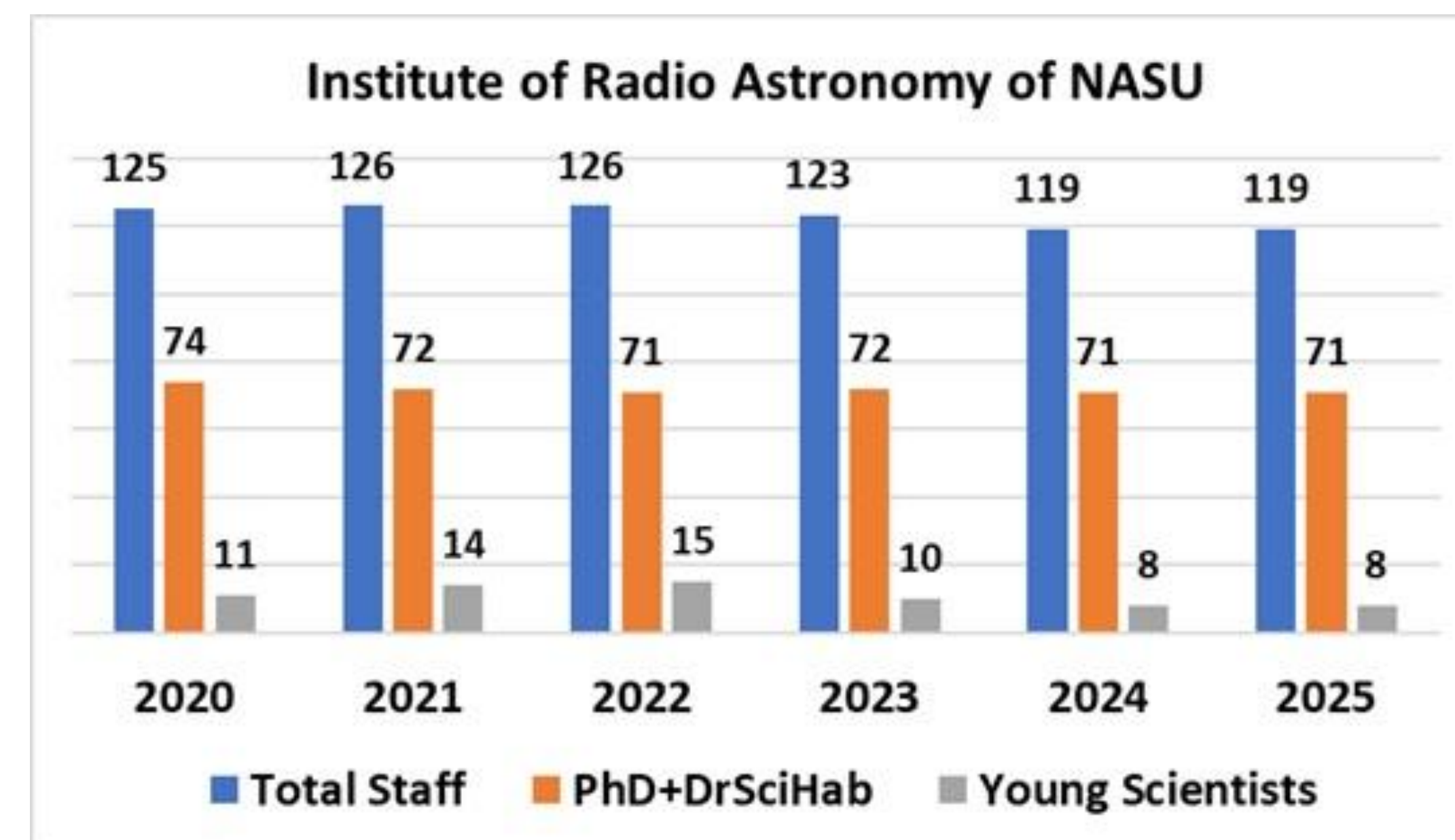
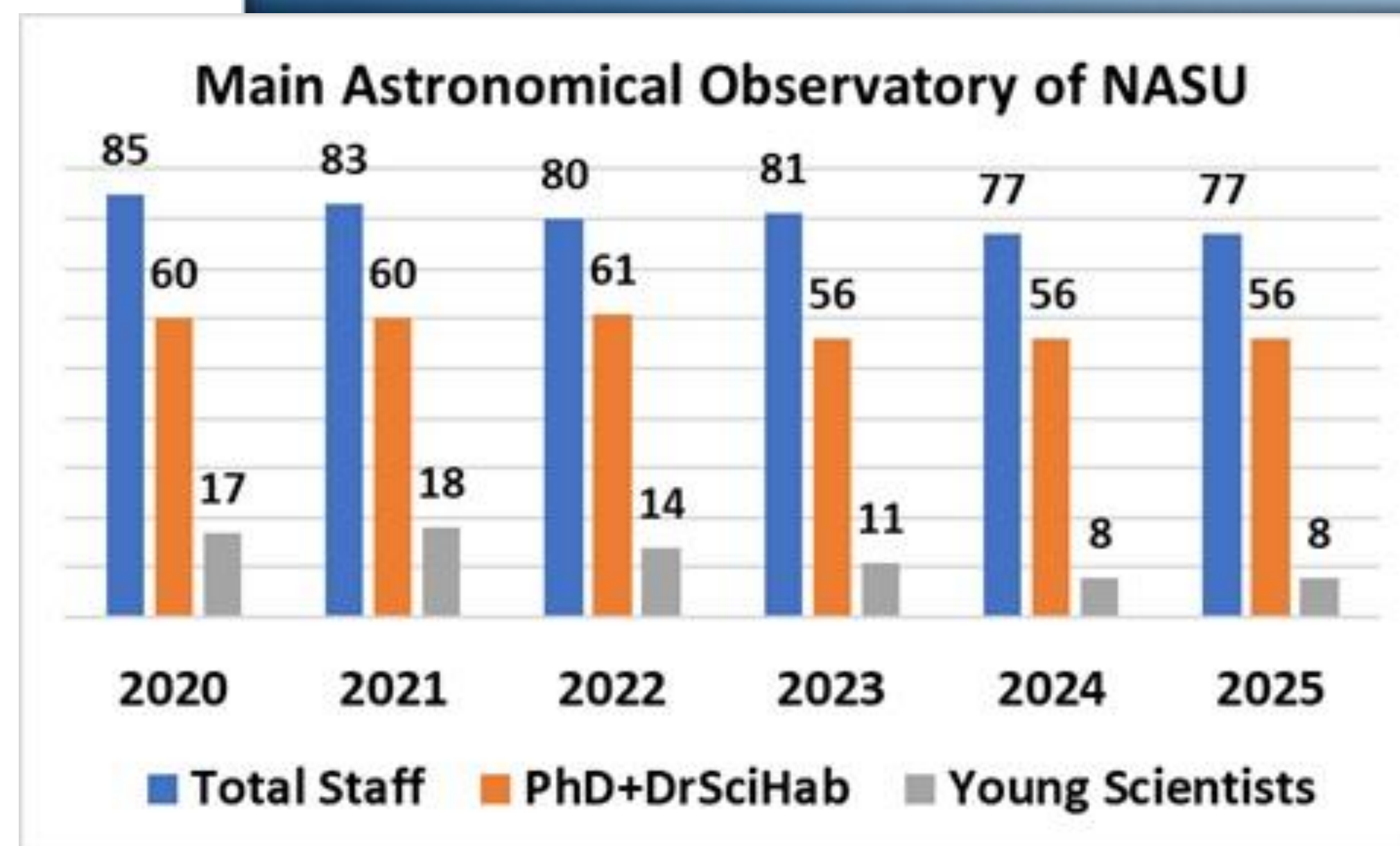
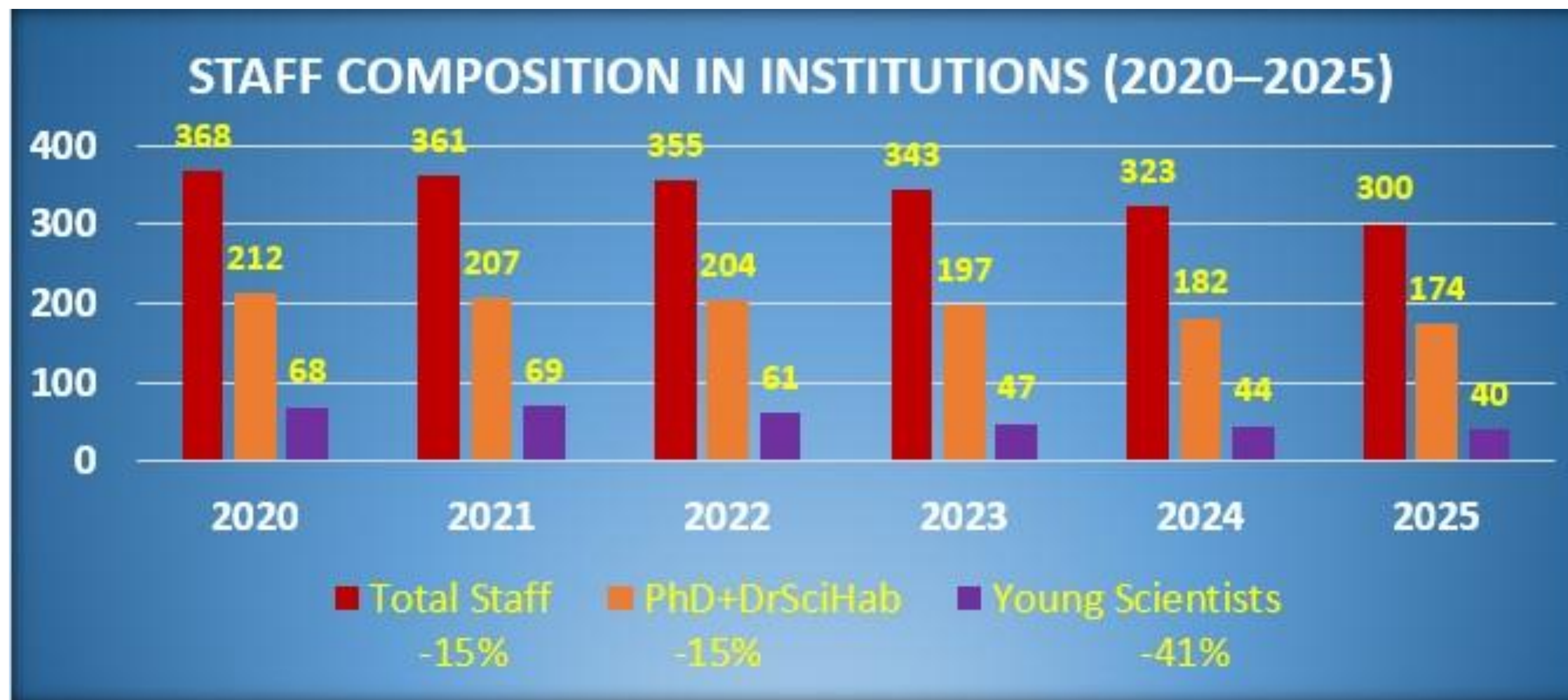
National Academy of Sciences of Ukraine

- ❖ Main Astronomical Observatory of the National Academy of Science of Ukraine
- ❖ Mykolaiv Astronomical Observatory – joined as the Dep of MAO NASU in 2025
Astrometry and Space Geodynamics; Near-earth astronomy; Heliophysics;
Sub-stellar and planetary systems; Interstellar media; Astrophysics; Extragalactic
Astronomy; High-energy Astrophysics; Ground-based and Space-born
Instrumentation; Numerical simulation; Cosmology
- ❖ Institute of Radio Astronomy of the National Academy of Science of Ukraine
Radio Astronomy: low frequency Radio Astronomy, Radio Physics; Ground-based
Instrumentation; Astrophysics;
- ❖ International Center for Astronomical & Medical-Ecological Research,
Terskol, North Caucasus, Russia
Optical Observational Astronomy
- ❖ Poltava gravimetrical observatory, Geophysical institute of NAS of Ukraine
Geodynamics; Low frequency Radio Astronomy
- ❖ Space Research Institute of NASU and SSAU
Ionospheric researches; Heliophysics
- ❖ Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine
Extragalactic Astronomy; Cosmology
- ❖ Pidstryhach Institute for Applied Problems of Mechanics and Mathematics
of the NAS of Ukraine
High-energy Astrophysics;

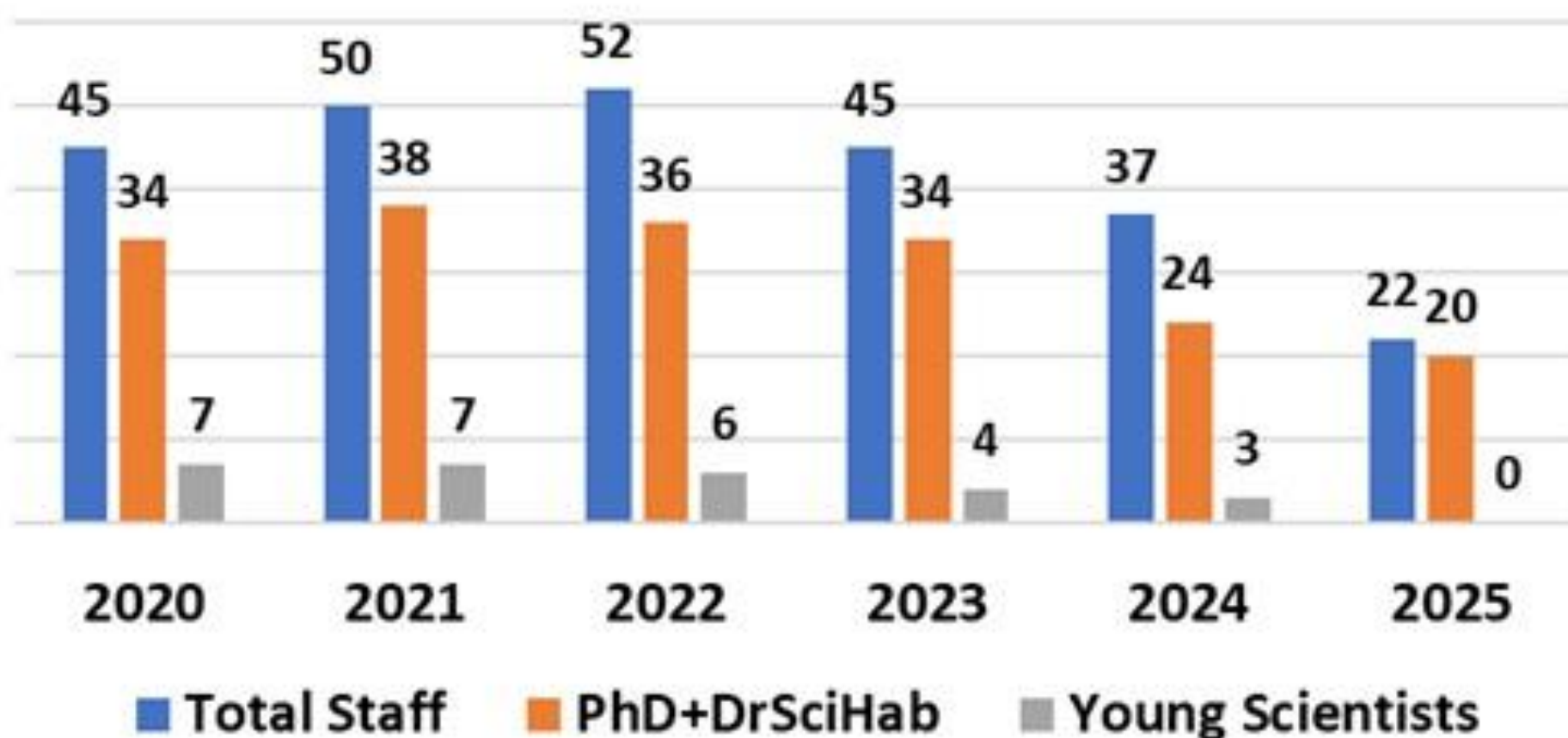
Research institutes & Universities 2025

Ministry of Education and Science of Ukraine

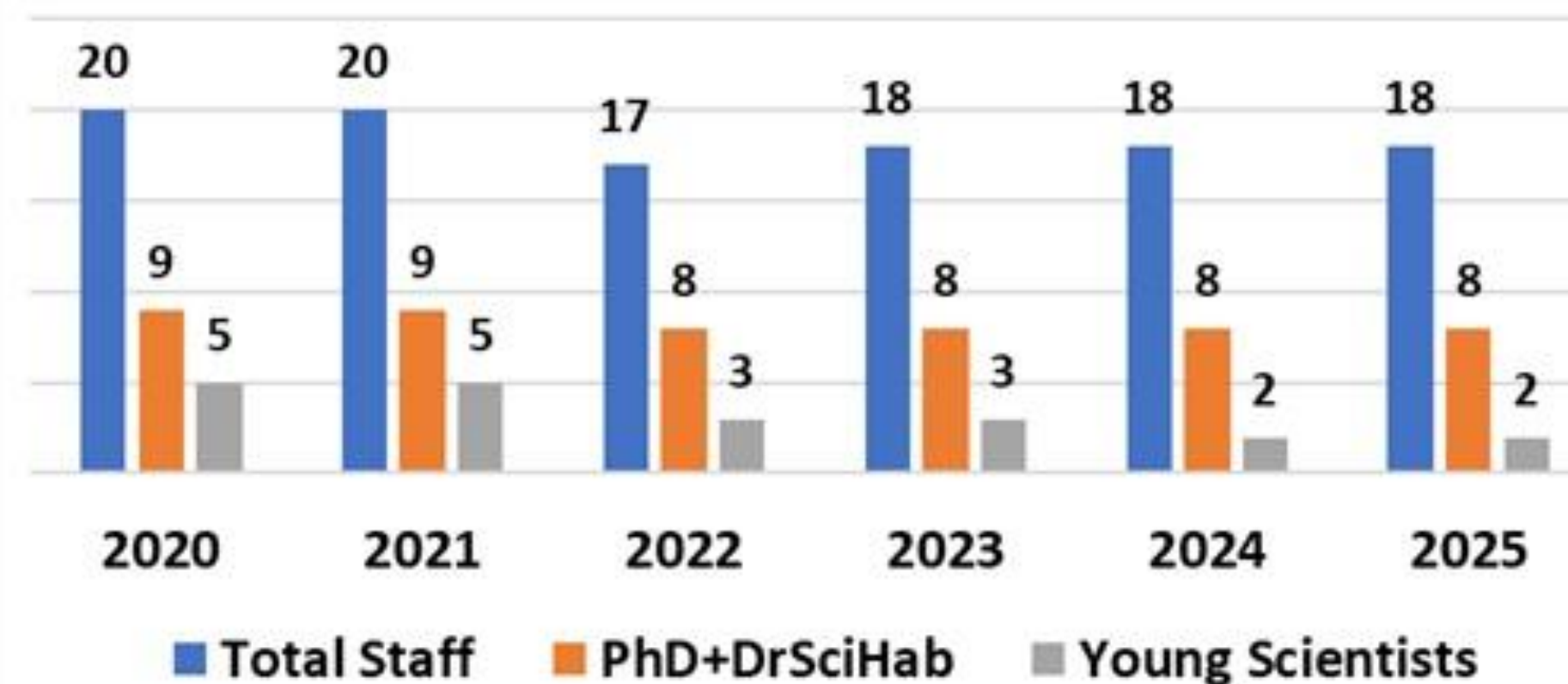
- ❖ Astronomical Observatory of the Taras Shevchenko Kyiv National University
Astrometry; Near-earth astronomy; Heliophysics; Small system bodys; High-energy Astrophysics; Cosmology
- ❖ Astronomical Observatory of the Ivan Franko L'viv National University
Positional Astronomy; Astrophysics: Sun, Stars, Extragalactic Astronomy, high-energy astrophysics; Cosmology
- ❖ Astronomical Observatory of the I.I.Mechnikov Odessa National University
Optical Observational Astronomy
- ❖ Institute of Astronomy of the V.N.Karazin Kharkiv National University
Physical conditions at the Moon and Small Solar System Bodies; Astrophysics;
- ❖ Odesa National Maritime University
Astrophysics
- ❖ Kharkiv National University of Radio Electronics
Metiorastronomy
- ❖ National University Lviv Polytechnica
Space Geodynamics; Celestial Mechanics
- ❖ Vinnytsya Kotsyubynsky Pedagogocal University
Teacher astronomy training
- ❖ Dragomanov Ukrainian State University
Teacher astronomy training
- ❖ Dnipro National University
Relativity theory



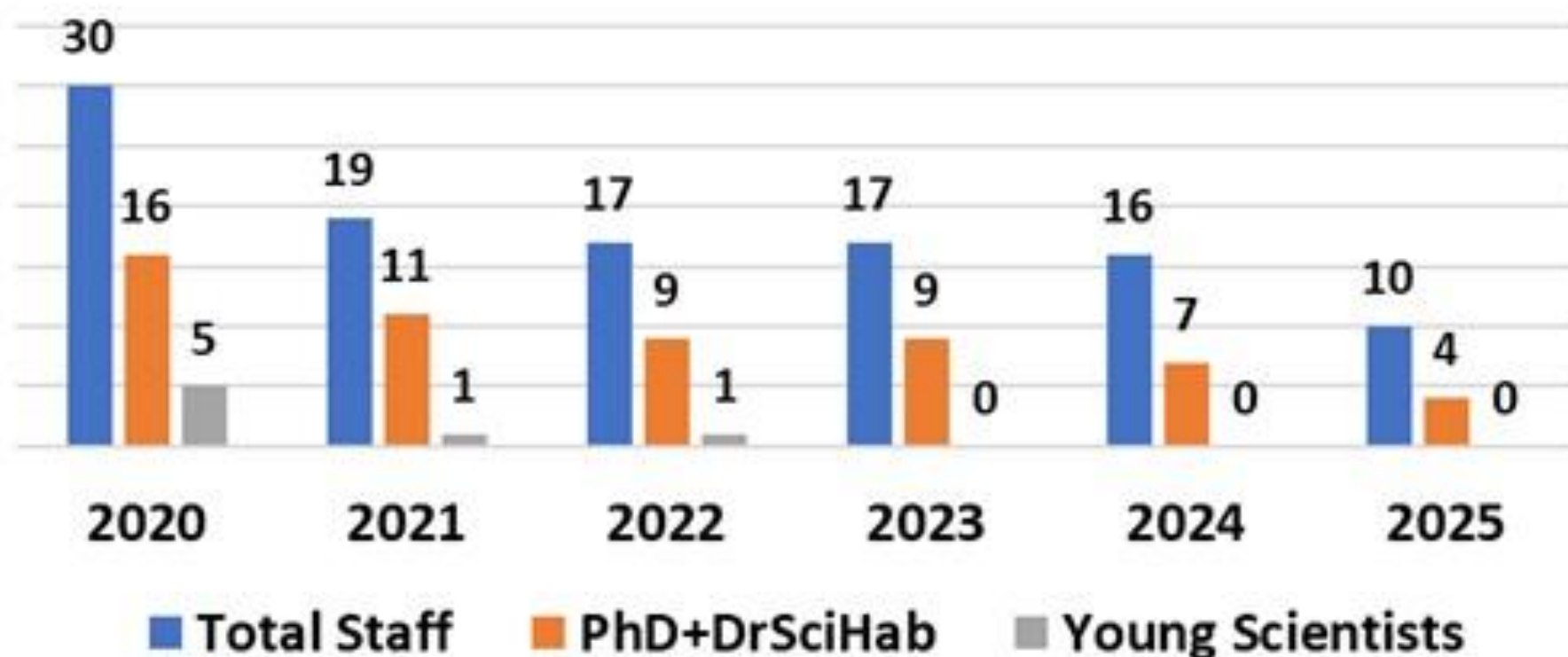
Taras Shevchenko National University of Kyiv



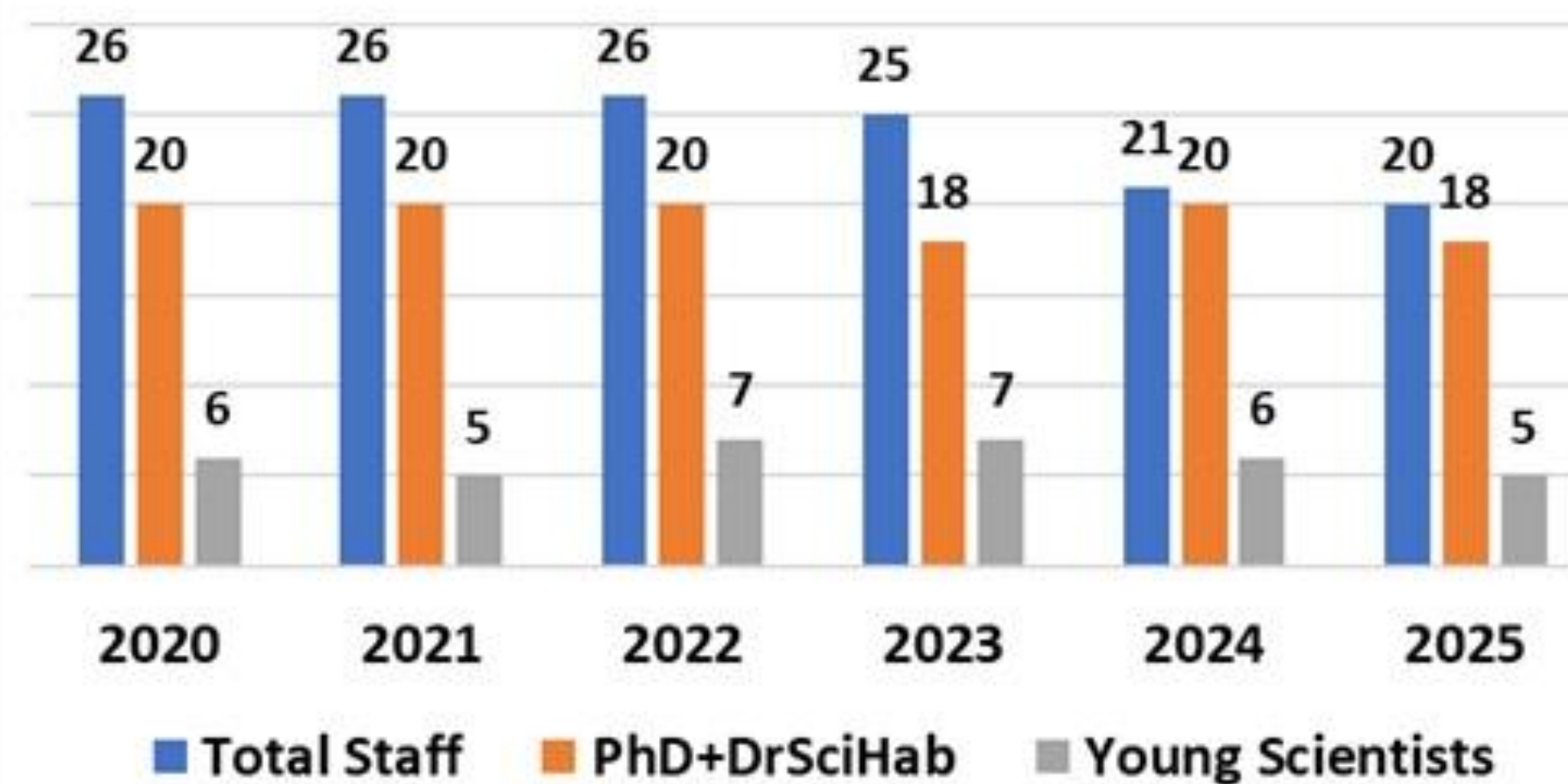
**Astronomical Observatory of Ivan Franko
National University of Lviv**



**Astronomical Observatory of Odesa
Mechnikov National University**



Research Institute of Astronomy of KhNU



Some decisions during the war' time

Participation of Ukrainian astronomers currently working in Ukraine in likely Horizon Europe projects (EURIZON, DESY), or bilateral projects between countries, can be used by the STCU to draw up agreements.

Are MSCA4Ukraine for astronomers working in Ukraine.

Membership contributions of the Russian Federation to the International Astronomical Union should be directed to the restoration of the telescope infrastructure of Ukraine or to support scientific schools for young astronomers, etc.

Access (on a competitive basis) to international programs that provide participation in the processing and formulation of scientific tasks, for example, LSST, DZA, CTA, etc.

- **Our heartfelt gratitude for your unwavering support and assistance during this difficult time.**
- **Your compassion and solidarity have been a true lifeline for Ukrainian astronomy amidst the ongoing war.**
- **Without your help, our efforts and achievements might have been impossible.**
- **Thank you for your dedication and professionalism!**
- **Together, we can overcome these challenges and continue advancing science, which is vital for our future.**

We are working on a Roadmap for the development of astronomy after the war.



Thank you! ♥