

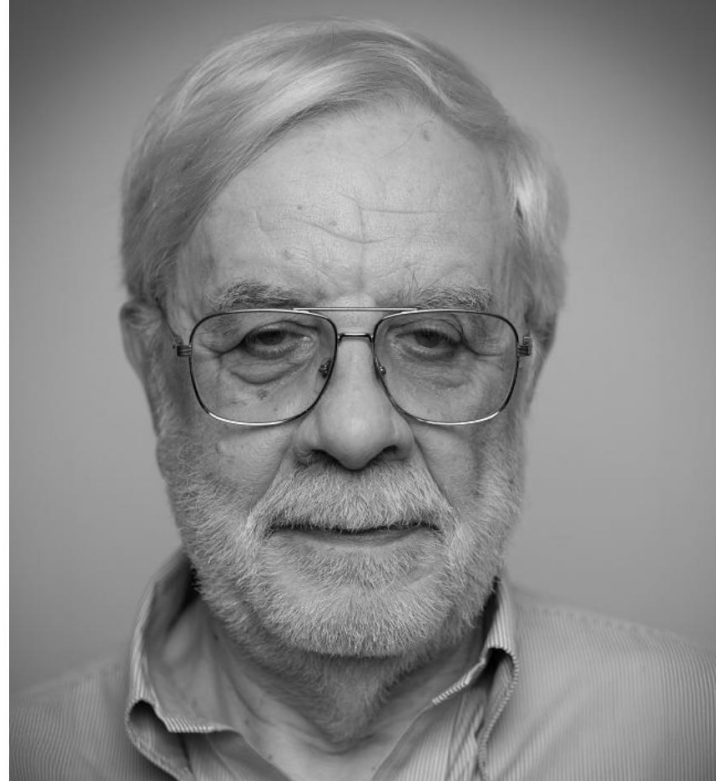
Centrum Astronomiczne im. M. Kopernika PAN Annual Meeting 2024

Rafał MODERSKI

Zmarł prof. Jean-Pierre
Lasota. Tropicielek
kosmicznych źródeł
promieniowania X

NAUKA 04.11.2024, 18:29

Prof. Marek Demiański





Prizes, awards and new memberships

MERAC Prize

The MERAC Prizes are awarded by the European Astronomical Society to recognize and support young European astronomers.

Dr Lorenzo Gavassino

(Vanderbilt University, United States of America)

for his thermodynamics-based formulation of relativistic viscous hydrodynamics for multi-messenger and gravitational astronomy.

Prizes, awards and new memberships

- **Michał BEJGER**

Nagroda Główna 20. edycji konkursu Popularyzator Nauki trafiła do redakcji miesięcznika "Delta". „Za pół wieku popularyzacji matematyki, fizyki, astronomii i informatyki na bardzo wysokim poziomie. Za umiejętność włączania w te działania naukowców, doktorantów i nauczycieli. Za wysoką merytoryczną i redakcyjną jakość publikacji

- **Krzysztof IŁKIEWICZ**

Stypendium Ministra Nauki i Szkolnictwa Wyższego dla Wybitnych Młodych Naukowców

Employment

	TOTAL						ZA I (Toruń)						ZA II (Bartycka)						AstroCeNT						
	2024		2023		2022		2024		2023		2022		2024		2023		2022		2024		2023		2022		
	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	FTE	os.	
pracownicy naukowci	51,43	73	65,9	87	59	72	5,67	7	7	7	7	7	7	37,26	57	38,0783	52	33	44	8,5	9	20,8476	28	19	21
bezterminowe	22,49	27	24,0	27	27	31	5	5	5	5	6	6	17,49	22	19,0	22	21	25							
terminowe	28,94	46	42,0	60	32	41	0,67	2	2	2	1	1	19,77	35	19,1	30	12	19	8,5	9	20,8	28	19	21	
prac. badawczo-techniczni	3,03	4	4,0	4	4	4	1	1	1	1	1	1	2,03	3	2	2	2	2	0	0	1	1	1	1	
liczba N	55,80	67	66,95	77	65,825	74																			
pozostali	44,16	61	46,9	64	43	52	5,05	8	4,13	7	4	6	34,26	43	32,4	44	32	37	4,85	10	10,4	13	7	9	
RAZEM	98,62	138	116,9	155	106	128	11,72	16	12,13	15	12	14	73,55	103	72,5047	98	67	83	13,35	19	32,2176	42	27	31	
PhD students		29		37		39				5		4				25		29				7		6	
przyjęci na I rok		3		1		4						1				1		2						1	

Employment

NEW Accounting Department

Katarzyna KRÓL – Head Accountant

Małgorzata TEODORCZYK – Deputy Accountant

Agnieszka DRÓZD

Marzena IWAŃCZYK

Monika NIZIOŁEK

Lidia ŚWIDNICKA

Beata ZAORSKA

Employment

NEW Project Support Department

Monika ZUCHNIAK – Head of the Department

Justyna KACZOROWSKA

Ksenia KEMPA

Katarzyna RUSINEK-ABARCA

Scientific performance - evaluations

2013 (2009-2012): A+	excellent
2017 (2013-2016): A	very good
2022 (2017-2021): A+	excellent

Criteria: I) *publications*, II) *grants*, and III) *influence on economy, society, etc.*

I) **publications (weight 60%)** – 378,66 (max 439,26)

II) grants (weight 20%) – 139,55 (max 139,55)

III) influence (weight 20%) – 30 (max 100/62,5)

For category A the reference numbers are 339,2/27,6/46

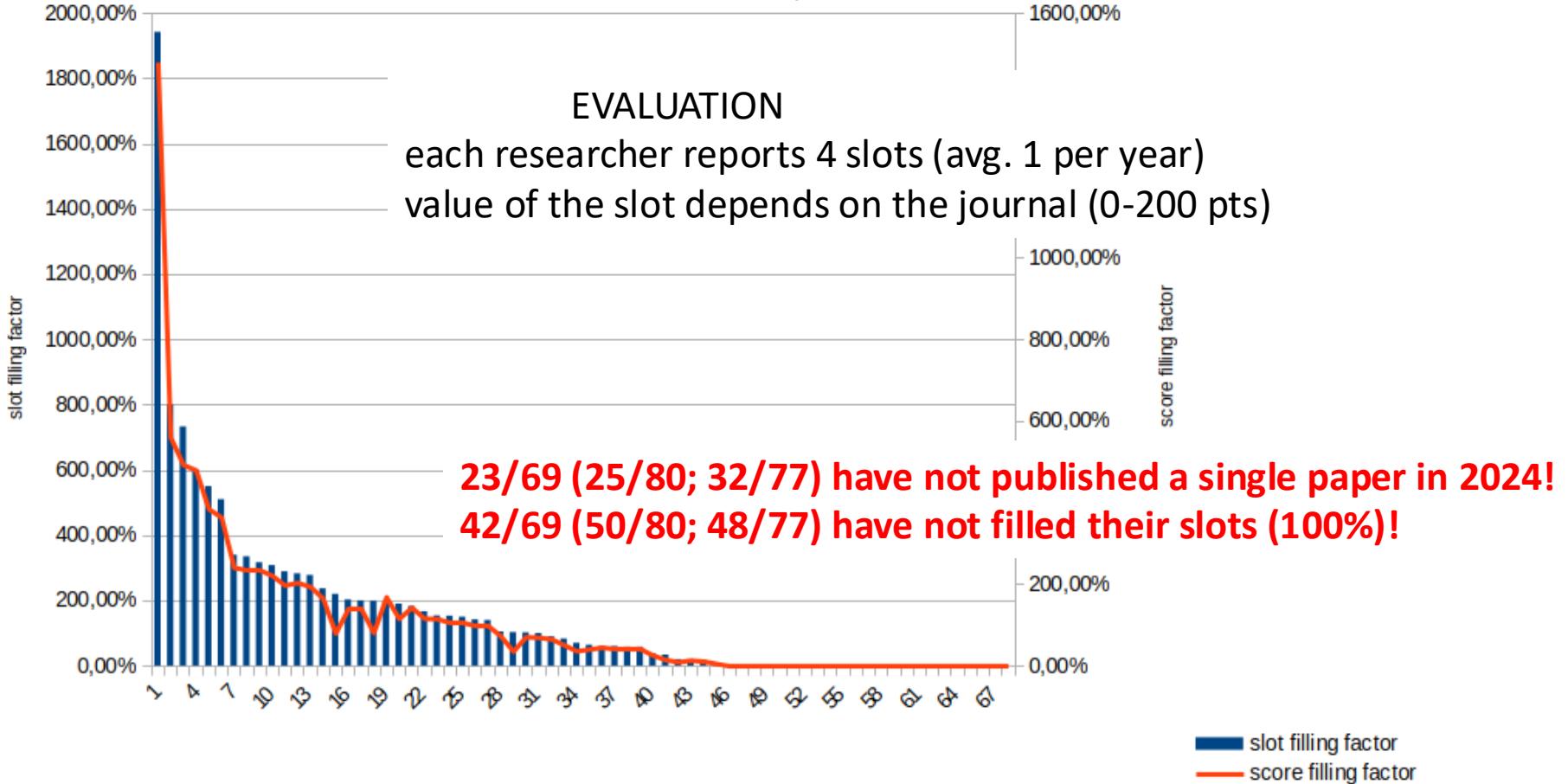
Expert evaluation for A+ (at least 86% of max publication score)

Publications/Presentations

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
number of reports	111	126	135	135	130	127	113	107	100	88	81	70	63
refereed publications	206	156	204	189	205	172	181	183	201	113	134	113	99
ratio (#pubrec/#rep)	1,86	1,24	1,51	1,40	1,58	1,35	1,60	1,71	2,01	1,28	1,65	1,61	1,57
conference publications	33	21	52	17	45	13	73	50	53	42	50	30	37
conference presentations	134	173	150	122	53	170	136	186	101	123	114	139	84
other presentations abroad	48	54	49	48	30	43	43	40	38	28	45	28	33
other presentations in Poland	35	38	31	45	57	63	56	62	82	84	89	83	75

papers with authors > 100	18%	21%	14%	20%	17%	23%	22%	19%	36%	14%
papers with 13 < authors < 100	19%	17%	22%	16%	19%	18%	17%	15%	20%	25%
papers with authors < 13	64%	62%	64%	64%	64%	60%	64%	49%	66%	58%

Publications/Presentations



Evaluation recommendation

- 1) Publish your results!
- 2) Publish in high score journals:

CAMK may cover OA publication costs in these journals – contact me for details!

1	<i>ACS Nano</i>	1936-0851
2	<i>Advanced Science</i>	2198-3844
3	<i>Annual Review of Astronomy and Astrophysics</i>	0066-4146
4	<i>Annual Review of Earth and Planetary Sciences</i>	0084-6597
5	<i>Applied Physics Reviews</i>	1931-9401
6	<i>Astronomy and Astrophysics Review</i>	0935-4956
7	<i>Astrophysical Journal Letters</i>	2041-8205
8	<i>Astrophysical Journal, Supplement Series</i>	0067-0049
9	<i>Computer Methods in Applied Mechanics and Engineering</i>	0045-7825
10	<i>Living Reviews in Relativity</i>	1433-8351
11	<i>Living Reviews in Solar Physics</i>	1614-4961
12	<i>Measurement: Journal of the International Measurement Confederation</i>	0263-2241
13	<i>National Science Review</i>	2095-5138

14	<i>Nature</i>	0028-0836
15	<i>Nature Communications</i>	2041-1723
16	<i>Nature Physics</i>	1745-2473
17	<i>Physical Review Letters</i>	0031-9007
18	<i>Physical Review X</i>	2160-3308
19	<i>Physics Reports</i>	0370-1573
20	<i>Proceedings of the National Academy of Sciences of the United States of America</i>	0027-8424
21	<i>Reports on Progress in Physics</i>	0034-4885
22	<i>Reviews of Modern Physics</i>	0034-6861
23	<i>Science</i>	0036-8075
24	<i>Science Advances</i>	2375-2548
25	<i>Sensors and actuators B: Chemical</i>	0925-4005

Evaluation recommendation

3) Insert your publication into ORCID database (make it public)

4) **Report your publication!**

3

4

Please REMEMBER to use 'Save' buttons especially before you exit the report or leave your desk to make a coffee.
UNSAVED DATA WILL BE LOST

1

Save and continue

Save and exit

Save and check ORCID and score

Print evaluation statement

Printable version

1. Refereed publications:

To attach an item to the report check the checkbox next to it. Items with empty checkboxes will not count to the report. Move mouse over a publication to see the full publication title and the list of the authors.

! Checking this you agree to add this publication to the GAMK evaluation and to your score. Meaning that you **cannot** agree this publication to be used in evaluation by another institute.

Additional (other than NCAC) Polish affiliations of an author can be added with 'Add affiliations' button.

Add Save

Add affiliations

2

In ORCID, score = 0.18

(R5041) "HESS J1809–193: A halo of escaped elec...", H. E. S. S. Collaboration; Aharonian, F.; Ait Benkhali, F. ..., 2023, A&A, 672, A103
 Corresponding author

Add to evaluation !

Completed and verified

In ORCID, score = 0.13

(R5046) "Search for the evaporation of primordi...", Aharonian, F.; Ait Benkhali, F.; Aschersleben, J. ..., 2023, JCAP, 2023, 040
 Corresponding author

Add to evaluation !

Completed and verified

In ORCID, score = 0.13

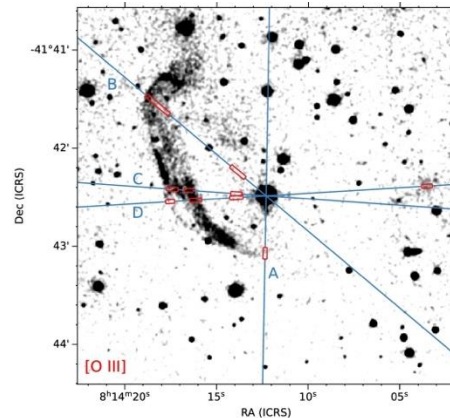
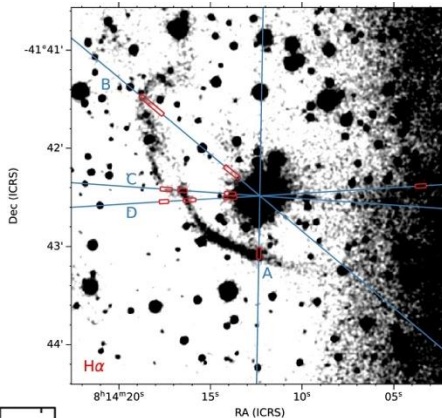
(R5072) "Sensitivity of the Cherenkov Telescope...", Acero, F.; Acharyya,

Scientific highlights

21 (21;24) papers in journals with 200 pts. (1 more in Nature Astronomy)

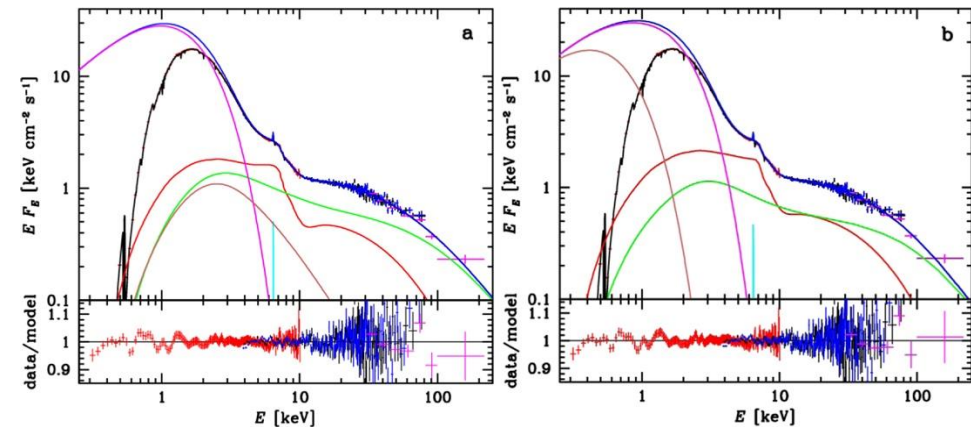
Ancient nova shells of RX Pup indicate evolution of mass transfer

Łkiewicz, K.; Mikołajewska, J. et al.
ApJL, 972, L14 (2024)



What is the black hole spin in Cyg-X1?

Zdziarski, A. et al.
ApJL, 967, L9 (2024).



Research projects

	2024			2023			2022			2021
	in progress	start	end	in progress	start	end	in progress	start	end	TOTAL
TOTAL	31	11	10	27	7	22	37	12	11	
NCN grants	23	8	4	21	4	14	25	10	10	43
MAESTRO	1		1	1		2	3		1	4
SONATA/BIS	4	1	1	5		2	6	1		7
OPUS	11	3	1	9	3	4	8	5	4	15
PRELUDIUM/ BIS	3	2	1	4		2	4	2	2	8
MINATURA		1				2		2		1
inne	4	1		2	1	2	4		3	8
MEiN grants	6	3	3	3	2	4	6	1	1	
EU grants	2		3	3		2	4			
other					1	2	2			

9 more projects started at the beginning of 2025

Grants finances

Grants awarded in	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total budget	41 217	12 661	10 530	76 778	14 557	15 202	50 096	7 245	23 604	2 466	5 820
First year	4 018	2 388	2 708	2 592	4 327	1 330	4 884	2 521	5 521	661	1 480

New grants

	tytuł projektu PL	nazwa konkursu	PI (w CAMK)
1	Zrozumienie mechanizmów późniejszej (falszywej) emisji w dwufazowych TPC dla poszukiwań ciemnej materii.	SONATA 19	VENTURA CORTEZ, Andre Filipe
2	Wyznaczenie czułości eksperymentów ARGO, DarkSide-20k, i DEAP-3600 na supermasywne naładowane grawitina	MINIATURA 8	OLSZEWSKI, Michał
3	Rozdzielone układy zacięniowe w dobie satelitarnych przeglądów fotometrycznych	OPUS 25	HEŁMINIAK, Krzysztof
4	Nachylny dipol w pulsujących ultrajasných źródłach rentgenowskich: globalne symulacje 3D GRMHD z promieniowaniem	PRELUDIUM 22	KAYANIKHOO, Fatemeh
5	innovative Structures for improved Light Collection in Argon-based TPCs (STELLAR)	MSCA Postdoctoral Fellowships 2023 HORIZON-MSCA-2023-PF-01	VENTURA CORTEZ, Andre Filipe
6	Kalibracja i uruchomienie mini-sieci teleskopów w SST-1M oraz obserwacje astrofizycznych źródeł promieniowania gamma wysokich energii (IFJ Lider)	MEiN – Wsparcie udziału polskich zespołów naukowych w międzynarodowych projektach infrastruktury badawczej	MODERSKI, Rafał
7	Fundamental properties of accreting black hole binaries	Grant Mikołaja Kopernika (Akademia Kopernikańska)	ZDZIARSKI, Andrzej
8	Detekcja i odszumianie sygnałów fal grawitacyjnych w Teleskopie Einsteina za pomocą metod głębokiego uczenia maszynowego	PRELUDIUM 22	ALHASSAN, Wathela
9	Związek akrecji i wyrzutu materii w rentgenowskich układach podwójnych zawierających czarne dziury.	SHENG 3	ZDZIARSKI, Andrzej
10	Badania fal grawitacyjnych w dobie odkryć LIGO-Virgo-KAGRA (UW lider)	OPUS 25	BEJGER, Michał
11	Testowanie nowych idei dla spolaryzowanej emisji radiowej pulsarów	OPUS 25	DYKS, Jarosław
12	Utrzymanie i rozwój międzynarodowego obserwatorium astrofizycznego	MEiN – Wsparcie udziału polskich zespołów naukowych w międzynarodowych projektach infrastruktury badawczej	PIETRZYŃSKI, Grzegorz
13	Sieć teleskopów robotycznych SOLARIS i Narodowe Centrum Satelitarnej Komunikacji Kwantowej	MEiN SPUB – Utrzymanie aparatury naukowo-badawczej / stanowiska badawczego	HANDLER, Gerald
14	Natura kontra wychowanie: fuzja nowo powstałych czarnych dziur w dysku AGN i emisje fal grawitacyjnych (BBHs in AGN)	POLONEZ BIS 3	MISHRA, Bhupendra

New grants

HORIZON-WIDERA-2023-ACCESS-01
(Teaming for Excellence)

Astrocent Plus

prof. Leszek ROSZKOWSKI

Financing infrastructure/instrumental projects

(International) Astronomical Observatory (OCM),

Chile

prof. G. Pietrzyński; ERC and MEiN grants in progress

National Center for Satellite quantum Communication (NCSatCom), RSA

prof. M. Konacki; MEiN SPUB in progress

SOLARIS, Argentina, RSA, Australia

prof. M. Konacki; MEiN SPUB in progress

SALT, RSA

prof. K. Hełminiak; MEiN grant in progress

BRITE, Poland

prof. G. Hamdler; MEiN SPUB in progress

Hyper-Kamiokande, Japan

dr. Marcin Ziembicki; MEiN grant in progress

H.E.S.S., Namibia

prof. R. Moderski; MEiN ended

CTA, Chile, La Palma

prof. B. Rudak, R. Moderski

DarkSide, Italy

dr. M. Kuźniak

New-ATHENA

prof. A. Różańska

Rolf Chini's Cerro Murphy Observatory in Chile









Scientific degrees & title

	2024	2023	2022	2021	2020	2019	2018	2017	2016
professor	0	0	0	1	3	1	0	0	1
habilitacja	(2)	(1)	0	4	2	5	2	1	1
PhD	9	6	10	4	3	2	5	4	1

Finances

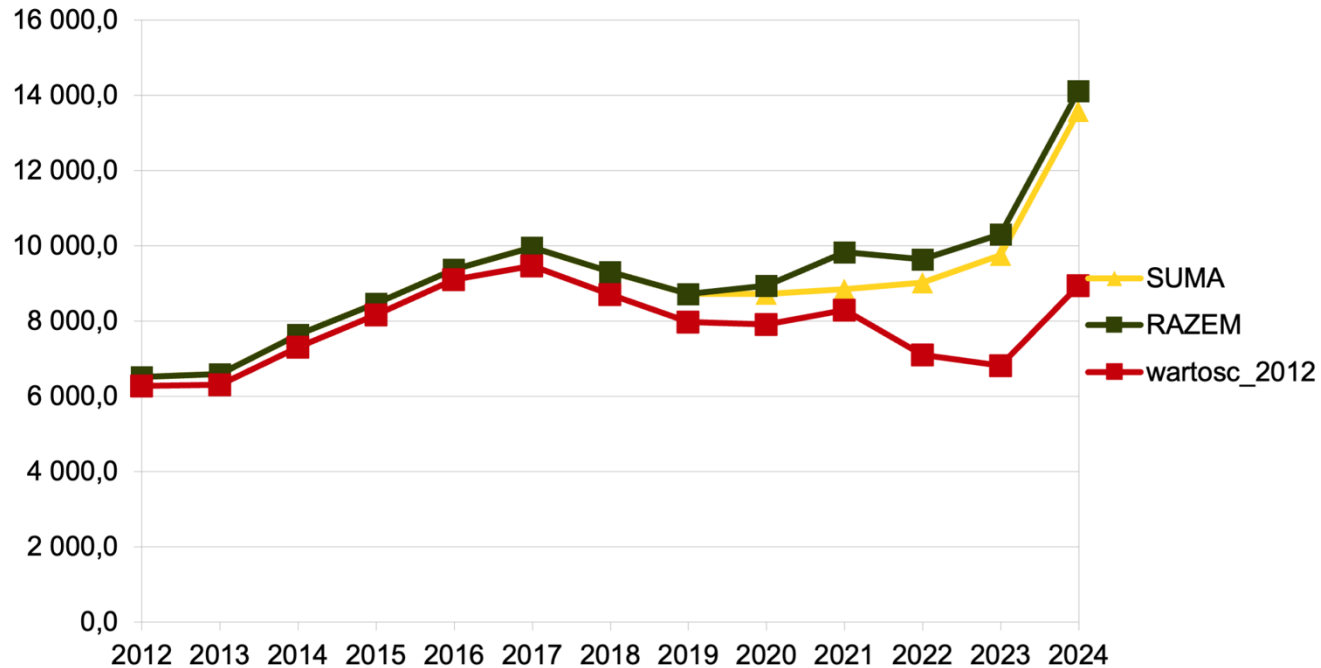
- Electricity: cost increase of 250 % in Jul 2022 – monthly cost increase from ca. 29 kPLN to 90 kPLN (since Dec 2022 – 100 %).
- Further increase of energy cost due to VAT increase (despite „the shield”) from 488 kPLN to 1027 kPLN
- We managed to decrease energy consumption from 579,1 MWh in 2021 to 410,3 MWh in 2024 (29%)
- Heating cost remains high: increase from 154 kPLN to 244 kPLN (consumption from 1625 GJ to 1701 GJ)

INCOME					
	2024	2023	2022	2021	2020
subwencja MEiN	13 570,2	9 752,2	9 025,8	8 848,8	8 718,0
subwencja bazowa	10 337,3	9 477,1	8 406,4	8 282,1	8 282,1
zwiększenie PhD	545,7	554,5	614,6	989,2	227,0
koszty pośrednie projektów	2 971,2	3 069,4	2 472,0	1 999,0	1 847,0
wynajem	447,7	438,6	408,0	339,0	367,0
hotel	137,8	113,8	107,0	98,0	90,0
usługi badawcze + R&D	379,8	341,1	421,0	650,0	381,0
inne	138,2	83,1	92,0	29,0	0,0
RAZEM	18 190,5	14 352,7	13 140,4	12 953,0	11 630,0
wynik finansowy	(2 972,0)	-6 053,7	4 715,7	161,9	81,9

Subsidy for the maintenance and development of research potential from MEiN (now MNiSW)

rok	subwencja	zwiększenie	SUMA	zmiana r/r	szkoła doktorska	zmiana r/r	RAZEM
	[kPLN]	[kPLN]	[kPLN]	[kPLN]	[kPLN]	[kPLN]	[kPLN]
2012	6 512,0		6 512,0				6 512,0
2013	6 593,0		6 593,0	81,0		0,0	6 593,0
2014	7 640,0		7 640,0	1 047,0		0,0	7 640,0
2015	8 462,0		8 462,0	822,0		0,0	8 462,0
2016	9 376,0		9 376,0	914,0		0,0	9 376,0
2017	9 951,0		9 951,0	575,0		0,0	9 951,0
2018	9 300,0		9 300,0	-651,0		0,0	9 300,0
2019	8 453,4	264,6	8 718,0	-582,0		0,0	8 718,0
2020	8 282,1	435,9	8 718,0	0,0	227,0	227,0	8 945,0
2021	8 282,1	566,7	8 848,8	130,8	989,2	762,2	9 838,0
2022	8 406,4	619,4	9 025,8	177,0	614,6	-374,6	9 640,4
2023	9 477,1	275,1	9 752,2	726,4	554,5	-60,1	10 306,7
2024	10 337,3	3 232,9	13 570,2	3 818,0	545,7	-8,8	14 115,9

Subsidy for the maintenance and development of research potential from MEiN (now MNiSW)





GreenCAMK

- **UPS replacement**
- 70% of CAMK power consumption is computing and auxiliaries (AC)
- UPS replacement (efficiency increase from ca. 85% to 99%)

GreenCAMK

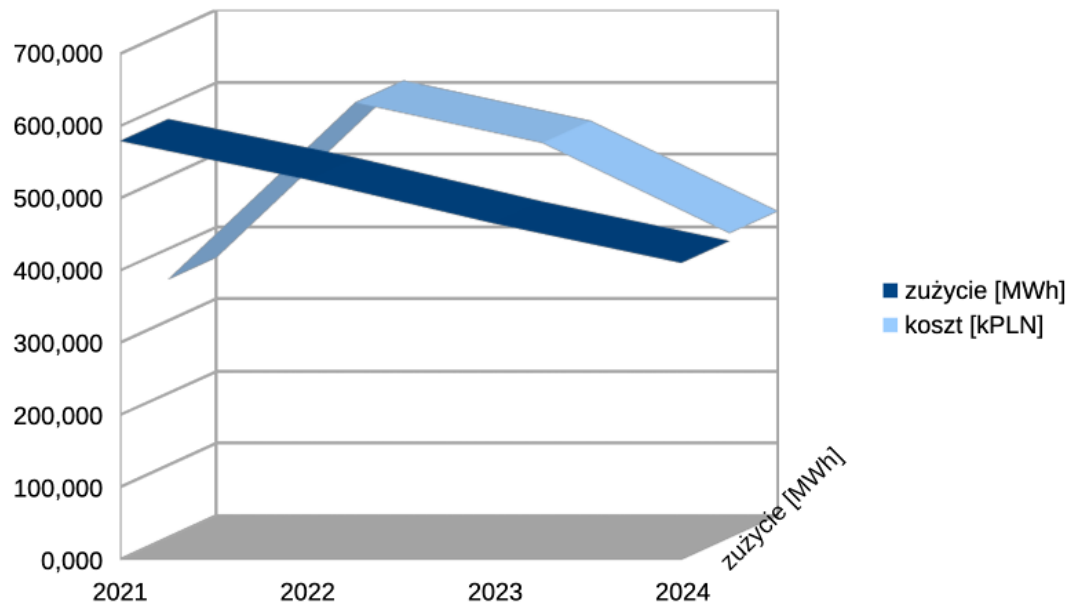
- **PV installation**
- 50 kWp installation on the roof in July 2024.
- 17.1 MWh in 2024 (ca. 5% in hal a year) (960 trees planted, 14 t CO₂, 5.4 t of coal)



GreenCAMK



rok	zużycie [MWh]	koszt [kPLN]
2021	579,071	357,087
2022	525,768	602,138
2023	465,089	546,356
2024	410,321	421,585



GreenCAMK

EV charging point



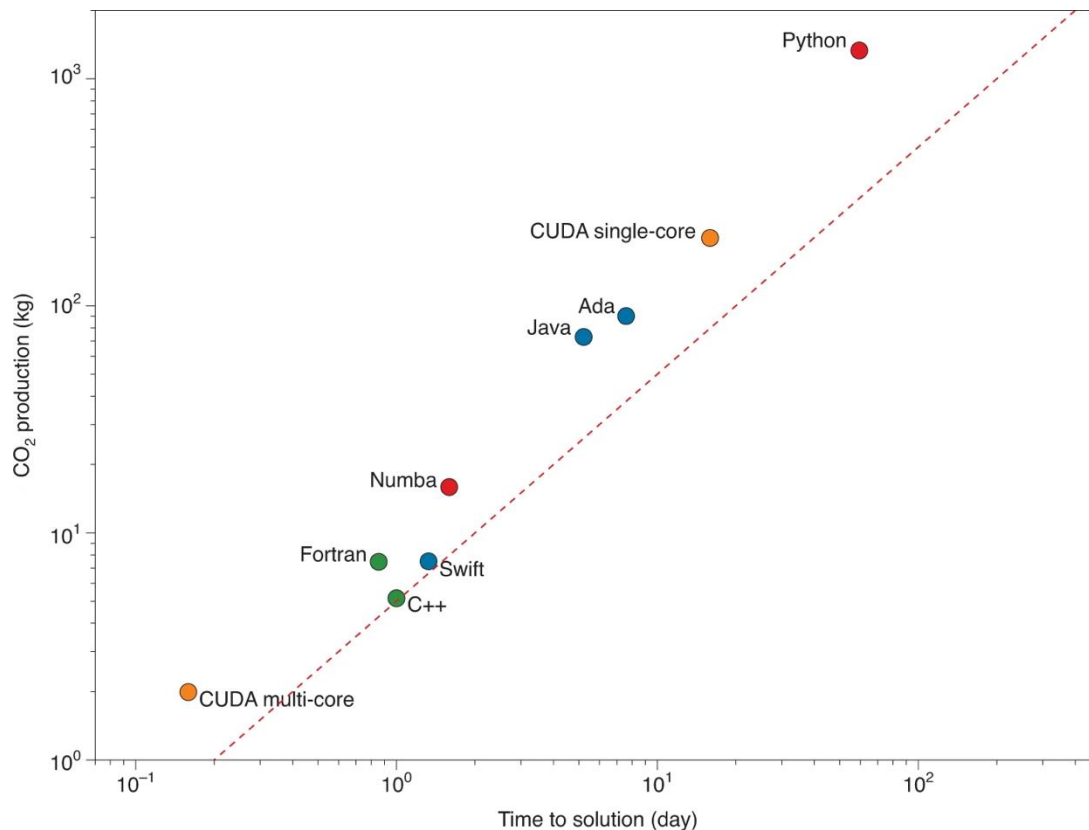
GreenCAMK

The ecological impact of high-performance computing in astrophysics

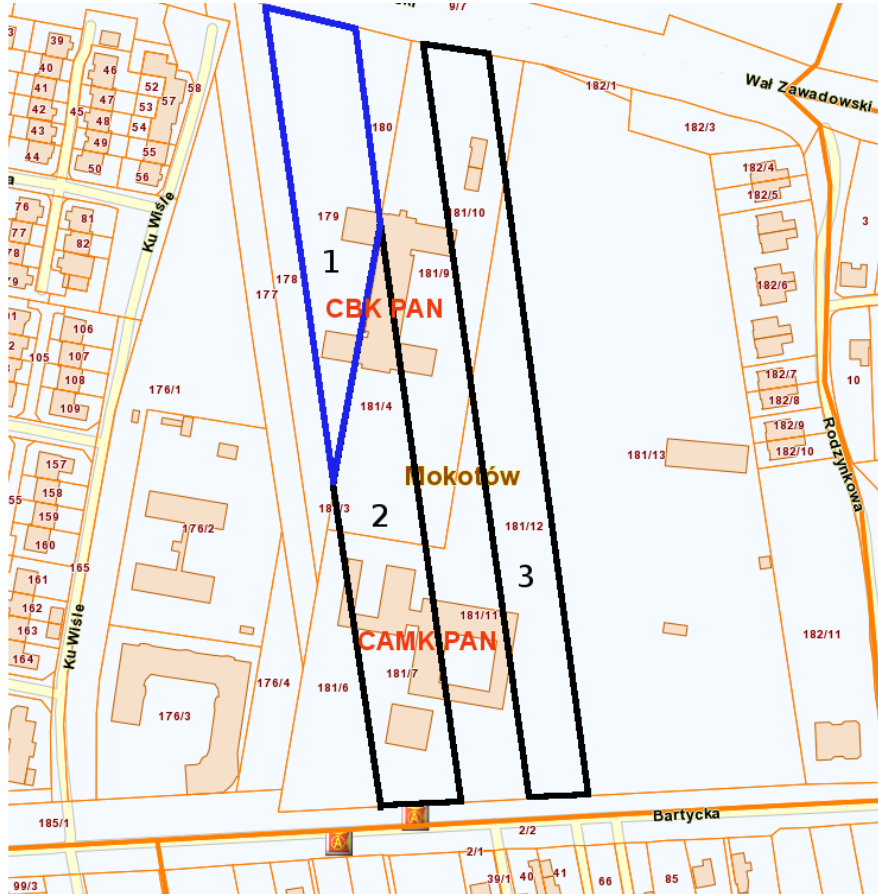
[Simon Portegies Zwart](#)

[Nature Astronomy](#)

4, 819–822 (2020)



Land ownership



- Series of land ownership disputes
 - **No. 2** already resolved in 2016-2020
 - **No. 3** - The court issued a judgment ordering the payment of compensation for non-contractual use of the plot (> 3,5 mln PLN with interests). We appealed against the verdict (123 kPLN cost) but hopes for a positive outcome are low.
- We are no longer using plot no. 181/13 – it has been released to PAS

Challenges for 2025

1) towards the permanent A+ category

- a) quality of research (easily available and monitored information on our performance + changes to employee evaluation system) – **new position openings in Toruń and Warsaw**
- b) better projects support – **Project Support Department created**
- c) better working and studying environment quality (GEP, HRS4R, remote work, computing infrastructure, training) **training**
- d) PR strategy (events, interviews, awards, social media actions)

2) the future of AstroCeNT – independent unit in 2026

3) “big” infrastructure

- a) OCM investment – awaiting 2.5 m telescope
- b) SOLARIS + NCSatCom – final commissioning and operation, **operation audit + repairs**
- c) BRITE control station – **change of the antenna system continues**
- d) participation in international projects (CTA, H.E.S.S., Hyper-Kamiokande, DarkSide, space missions)

4) salaries and costs (unknown)

- a) formal increase of salaries and scholarships

5) GreenCAMK

- a) **heating optimization – energy efficiency audit**

THANK YOU

and I wish you a nice meeting!

GeoPlanet Doctoral School

