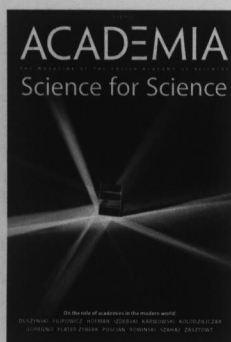


Contents

Part I	THE ACADEMY IDEAL	5
Prof. Stanisław Filipowicz	WHEN WE SAY "ACADEMY"...	6
Prof. Jerzy Duszyński	THE ACADEMY: THEN AND NOW	12
Prof. Antonio Loprieno	QUO VADIS, ACADEMIA?	18
Prof. Iwona Hofman	BRANDING IN SCIENCE	22
Part II	THE CHALLENGES OF SCIENCE	27
Prof. Hubert Izdebski	SELF-GOVERNANCE, AUTONOMY, AND FREEDOM OF SCIENCE	28
Dr. Alicja Puścian	WHY GREATER DIVERSITY MAKES FOR BETTER SCIENCE	34
Prof. Iwona Hofman	A COMMUNITY OF SCHOLARS	38
Prof. Paweł M. Rowiński	BOLDLY FACING CHANGE	42
Dr. Anna Plater-Zyberk	SCIENCE COLLABORATION ACROSS BORDERS	45
Part III	THE CURRENT THREATS	51
Prof. Andrzej Szahaj	SCIENCE IN THE TIMES OF A NEW OBSCURANTISM	52
Prof. Jerzy Kołodziejczak	ARE WE ON THE VERGE OF AN ERA OF NEOIGNORANCE?	56
Dr. Piotr Karwowski	INFORMATION VS. DISINFORMATION	61
Prof. Leszek Zasztowt	NEO-BARBARISM UPON US?	66



COVER IMAGE: FREEPIK

THE MAGAZINE OF THE POLISH
ACADEMY OF SCIENCES
no. 1/73/2022
Quarterly
ISSN 1733-8662
500 copies printed
© Polska Akademia Nauk
Polish Academy of Sciences,
Office for Popularizing
and Promoting Science
PKiN, pl. Defilad 1
00-901 Warsaw, Poland
www.pan.pl
www.academia.pan.pl
academia@pan.pl

EDITORIAL STAFF

Magdalena Prokopowicz
Editor-in-Chief
Ilona Siwak
Editor
Jolanta Iwańczuk
Earth Sciences
Marcin Pietras
Biological
& Agricultural Sciences
Justyna Orłowska
Journalist
Weronika Chmielewska
Cover Graphic

Daniel Sax
Editor, English-
Language Version
Andrzej Figatowski
Graphic Designer
**DG ART Agnieszka
Deluga-Góra**
Photo editing
Translation by:
Sax Translations
Printed by
Agencja Wydawniczo-
Poligraficzna Gimp

SCIENTIFIC COUNCIL

Jerzy Duszyński
President of the Polish
Academy of Sciences
(Chairman)
Stanisław Filipowicz
Roman Słowiński
Grażyna Borkowska
Katarzyna Turnau
Roman Micnas
Witold Rużyłło
Antoni Rogalski
Henryk Szymczak

IN THIS ISSUE

Focus on

- 9** Dariusz Ilnicki, Krzysztof Janc
PARALLEL REALMS, INTEGRATED LIVES
- 12** Maciej J. Nowak **SPACE AND THE LAW**
- 16** Tadeusz Markowski
CHERISHING OUR CLOSEST SURROUNDINGS
- 24** Przemysław Śleszyński, Adam Kowalewski
HUMAN LIVING SPACE IN CRISIS
- 28** Ewelina Ratajczak, Hanna Fuchs,
Joanna Kijowska-Oberc, Jan Suszka,
Aleksandra M. Staszak
SEED DISPERSION
- 35** Marta Piechocka-Nowakowska
A SPACE FOR EVERYONE

Research in Progress

- 38** Marcin K. Dyderski
SPECIES DISTRIBUTION
- 42** Maciej Kałaska
TRACING THE ORIGIN OF ANCIENT TREASURES
- 46** Joanna Fidelus-Orzechowska,
Elżbieta Gorczyca, Kazimierz Krzemień
TRAILS IN THE TATRAS
- 50** Magdalena Długosz-Lisiecka, Daniel Tyborowski
IN SEARCH OF RADIOACTIVE FOSSILS
- 54** Elżbieta Jancewicz **HOME, HOME ON THE RANGE**

Briefly Speaking

- 58** Elżbieta Rybicka
PLACES AND SPACES IN CULTURE

Insight

- 62** Piotr Lorens **ARCHITECTURAL ASPECTS OF SPATIAL PLANNING**
- 66** Aleksandra Olejak
RIPPLES IN SPACETIME
- 69** Jan Kordys **TO HAVE AND TO BE**
- 72** Jan Chwedeńczuk **HILBERT SPACE**
- 75** Tomasz Komornicki, Paulina Legutko-Kobus
PAS COMMITTEE FOR SPATIAL ECONOMY AND REGIONAL PLANNING

Short Circuit

- 76** Katarzyna Kasia **NOTHINGNESS AND INFINITY**

In the Lens

- 78** Paulina Majda
AT HOME UNDER THE DOME



4 METHODS OF SPATIAL DEVELOPMENT

| Paulina Legutko-Kobus

The natural environment is crucial to socioeconomic development and to human well-being; proper spatial planning efforts allow it to be shaped in a rational way.



20 THE "SPACE OF FLOWS" IN POLAND AND EUROPE

| Tomasz Komornicki

On the continental scale, many types of flows and linkages are developing most dynamically in Central-Eastern Europe – including in Poland.



32 GALILEO'S ADVENTURES IN WONDERLAND

| Maciej Kolanowski

The world behind the looking-glass portrayed by Lewis Carroll turns out to be real, having been discovered by physicists. So where's the entrance?

IN THIS ISSUE

Focus on

- 8** Carsten Carlberg
THE GENOME ABOVE THE GENOME
- 12** Cezary Kępka
IMAGES WORTH A THOUSAND WORDS
- 16** Iwona Stachlewska
WHAT'S SUSPENDED IN THE ATMOSPHERE
- 20** Danuta Ulicka **CRISES AND BREAKTHROUGHS, TURNS AND RENEWALS**
- 24** Anna Woźniak **TURNING POINTS THAT TEACH US TO PAY ATTENTION**
- 27** Kamil Śliwowski **DIGITAL TRANSFORMATION JUST AROUND THE CORNER**

Research in Progress

- 30** Piotr Weckwerth **THE SUWAŁKI CATAclysm**
- 36** Fabian Welc
HOW TO COMPARE THE INCOMPARABLE?
- 41** Mirosław Ząbek, Paweł Obierzyński, Adrian Drożdż
GENES THAT CURE
- 44** Marcin Pietras **FUNGI TELL THEIR SECRET TALES**

Briefly Speaking

- 48** Anna Wylegała **HOW SOCIETY SHIFTS**

Insight

- 52** Olaf Szewczyk
SUNLIGHT AT THE END OF THE TUNNEL
- 60** Mirosław Ząbek, Paweł Obierzyński, Adrian Drożdż
FOCUSED ULTRASOUND: DOING DAMAGE SO AS TO HEAL
- 67** Stanisław Karpiński **PLANTS TALK TO ONE OTHER**
- 70** Amedeo Romagnolo **NEW KNOWLEDGE FROM GRAVITATIONAL-WAVE OBSERVATIONS**
- 73** Bogusław Bagiński
TRACKING DOWN RARE-EARTH ELEMENTS

Short Circuit

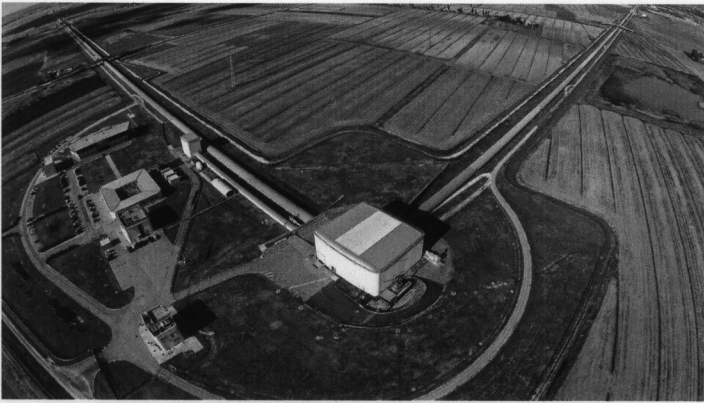
- 78** Katarzyna Kasia
A LONELY MAN IN A DISTANT BACKWATER

In the Lens

- 80** Adam Witkowski **THE HEART COMES FIRST**

Current Projects

- 86** Karolina Ćwiek-Rogalska
GHOSTS OF FORMER INHABITANTS



4 NEW WINDOW ON THE UNIVERSE

| Andrzej Królak, Piotr Jaranowski

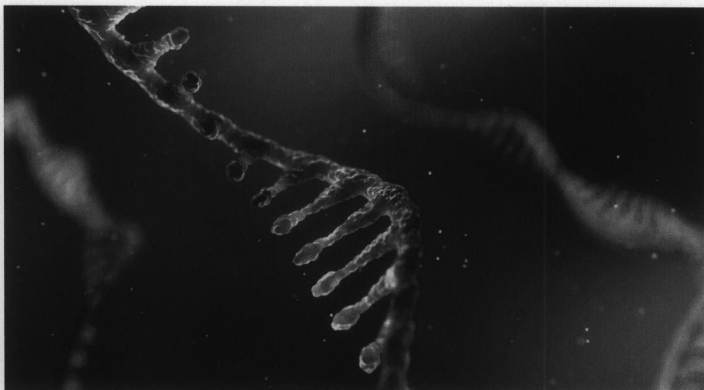
The first direct detections of gravitational waves marked a major turning point in modern astronomy.



56 REEFS IN THE TWILIGHT ZONE

| Mikołaj K. Zapalski

Coral reefs are the world's most complex marine ecosystems, common in tropical coastal areas. Are they in danger of extinction?



64 SCIENCE KNOWS NO BOUNDARIES

| Jacek Jemielity

About tailor-made cancer therapies and about what coronavirus vaccines have to do with cancer treatment.

COVER PHOTO: ELENA11/SHUTTERSTOCK.COM

PHOTO P. 2: VIRGO PROJECT, DR PIM BONGAERTS, NOBEASTSOFFICE/SHUTTERSTOCK.COM

LAST PAGE PHOTO: WIRESTOCK/FREEPIK



12 IMAGES ARE NOT INNOCENT

| Marianna Michałowska

On how different cultures approach images and whether they can take the place of words.



30 OTHERWORLDLY SURFACES

| Anna Łosiak

Pictures of heavenly bodies taken by space probes or planetary rovers give us the opportunity to explore other worlds.



62 IMAGERY THAT ENRICHES OUR SPEECH

| Maciej Rosiński

Gestures and facial expressions supplement our speech and improve communication. But in different cultures, the very same gestures can have different meanings.

Focus on

- 4 Joanna Hańderek **IMAGERY BEGINS WHERE WORDS END**
- 8 Monika Stobiecka **THE REPRESENTATION OF OBJECTS IN MUSEUMS**
- 15 Krzysztof Moraczewski **OUR DIFFERENT IMAGES OF THE WORLD**
- 18 Bogusław Skowronek **THE LINGUISTIC IMAGE OF THE WORLD**
- 21 Joanna Arvaniti **TREASURES OF THE ACADEMY**
- 22 Paweł Strzebiński **THE FOREST IN INFRARED**
- 26 Edyta Ołdak **LANDSCAPE VS ENVIRONMENT, PAINTING VS CONCEPTUAL ART**

Research in Progress

- 34 Joanna Rychel, Łukasz Nowacki, Mirosław Kamiński **VISUALIZING GEOLOGICAL STRUCTURES**
- 39 Michał Bęcik **LANDSCAPES AND SOUNDSCAPES**
- 42 Anna Waśkowska, Justyna Kowal-Kasprzyk **A PORTRAIT OF FORAMINIFERA**

Briefly Speaking

- 46 Marta Zaborowska **THE ARTWORK DOCTORS**

Insight

- 50 Dominik Tomaszewski, Marzenna Guzicka **DRAWINGS AND MICROGRAPHS: COMPLEMENTARY WAYS OF DEPICTING THE BIOLOGICAL WORLD**
- 55 Katarzyna Kaczmarczyk, Michalina Błażkiewicz **A PICTURE IS WORTH A THOUSAND STEPS**
- 58 Magdalena Zawisza **THE PATHWAY OF CREATION**
- 66 Paweł Dłotko **VISUALIZING MAPS IN PRACTICE**
- 70 Urszula Zajączkowska **THE POINTS, LINES, AND TRAJECTORIES OF PLANTS**

Short Circuit

- 74 Katarzyna Kasia **SHADOWS AND REFLECTIONS**

In the Lens

- 76 Hubert Lachowicz **THE MANY FACES OF WOOD**

Current Projects

- 82 Jadwiga Linde-Usiekniewicz **THE CASE FOR FEMINATIVES IN POLISH**

COVER IMAGE: "AUDREY", CRAIG ALAN (ARTIST), DELJOU ART GROUP (PUBLISHER),
WWW.DELJOUARTGROUP.COM INFO@DELJOUARTGROUP.COM
PHOTOS P. 2: MARIANNA MICHAŁOWSKA, NASA/JPL-CALTECH/MS55,
REDPIXEL.PL/SHUTTERSTOCK.COM