



Academy of Sciences of Moldova



INSTITUTE OF APPLIED PHYSICS

Chisinau, 2018

Foundation

- The Institute of Applied Physics (IAP) - the largest scientific physical institution in the Republic of Moldova
- Founded in 1964.



Academician Boris LAZARENKO
(1910-1979)

The first director of the Institute, inventor, researcher, laureate of the USSR State Prize for the invention of the Electrical discharge machining (EDM), the founder of the IAP Experimental Plant - the 1970 - 1980 USSR monopolist in EDM systems.

History

The Institute has been known to the world scientific community for its fundamental and applied investigations since its establishment thanks to the schools:

- of Crystallography (**acad. T. Malinowski**)
- of Electrochemistry (**acad. Yu. Petrov**)
- of Physics of Semiconducting Materials (**acad. S. Radautsan**)
- of Kinetic Physics (**acad. V. Kowarski**)
- of Physics of Noncrystalline Materials (**acad. A. Andriesh**)

Today the Institute is proud to have **acad. S. Moskalenko** and **acad. V. Moskalenko** as the heads of the theoretical physics schools of Solid State Theory and of Nuclear Physics; **acad. A. Simashkevich** as the head of the school of II-VI Semiconductor Materials; **acad. E. Arushanov** as the head of the school of Ternary and Multinary Semiconductors, **acad. M. Bologna** as the head of the school of Intensification of Heat- and Mass-Transfer and **acad. Leonid Kulyuk** as the head of the school of Materials Science and Engineering.

Present

The Institute has 10 laboratories:

- Quantum Photonics
- Physics of Semiconductors *Sergiu Radautsan*
- Theoretical Physics
- Electro-physical and Electro-chemical Treatment of Materials
Boris Lazarenko
- Materials for Photo-voltaics and Fotonics
- Physical Methods of Solid State Investigation *Tadeusz Malinowski*
- Optoelectronics *Andrei Andriesh*
- Quantum Optics and Kinetic Processes
- Mechanical Properties of Materials *Iulia Boiarskaia*
- Thermo- and Hydro-dynamic Processes

Staff (31.12.2017)

Currently the Institute employs **225** persons,
among them **160** researchers:

24 doctors-habilitate and professors

91 doctors

6 ASM academicians

1 ASM corresponding members

34 young scientists (under 35)

13 PhD students

Infrastructure 1



Xcalibur diffractometer
from *Oxford Diffraction*



Nanotester
PMT3-NI



**Solar Cell
Tester**
ST1000

Main Research Areas

- Physics of condensed matter, atoms and nuclei
- Semiconductor materials, including nano- materials
- Quantum optics and electronics
- Development of multifunctional electronic and optoelectronic devices, of new technologies
- Using electric fields to intensify heat- and mass transfer
- Modification of surfaces of materials by electro-physical and electrochemical methods.

IAP: Cooperation in ERA

The Institute of Applied Physics is a contributor to and supporter of the Academy of Sciences of Moldova mission to define the research and technology policy of the 21st century and train the experts/leaders of a technologically driven world.

Through cooperation within the European Research Area (ERA) and active participation in FP7 and H2020 the IAP have the possibility to unlock its full potential for research and technological innovation.

Thus, today more than 50% of all scientific investigations carried out in Moldova and introduced in international data bases were developed in “Physics&Astronomy” and “Materials Science” research areas, according to the SCImago Journal & Country Rank.

The main part of these investigations is conducted at the IAP.

Funding Through International Programs



The Seventh Framework Programme

Science and Technology Center in Ukraine



U.S. Civilian Research and Development Foundation

International Association for promotion of research



German Federal Ministry of Education and Research

Swiss National Science Foundation



Ministry of Education and Science of Ukraine

Romanian National Authority for Scientific Research



Russian Foundation for Basic Research

Italian National Research Council



Belarusian Foundation for Fundamental Research



HORIZON 2020



HORIZON 2020

The EU Framework Programme for Research and Innovation

Boosting the scientific excellence and innovation capacity in digital holographic microscopy of the Institute of Applied Physics of the Academy of Sciences of Moldova

H2020-TWINN-2015 Twinning

36 months, starting January 1, 2016

999 926.25 € (50,7% for IAP)

Universität Stuttgart, Germany

Tampere University of Technology, Finland

Intelligentsia Consultants Sàrl, Luxembourg



***Elena
ACHIMOVA,***
project
coordinator

FP7-ICT: I4MS-GATE (2013-2015), FP7-INCO: SECURE-R2I (2013-2016), CSSDT 13.823.15.10/GA (2013-2015)

<http://www.phys.asm.md/ro/personalpages/eachimova>

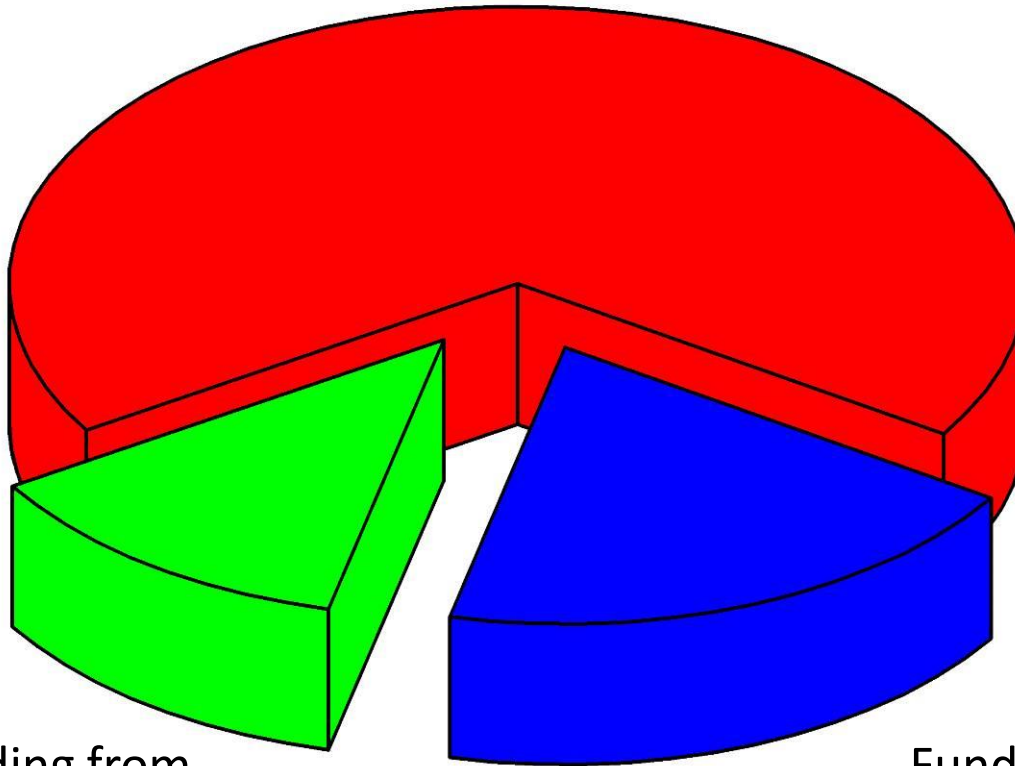
2018 International Projects

ASM - National Research Council, Italy	1
ASM - Romanian National Authority for Scientific Research	1
ASM – State Agency for Science and Inovation of Ukraine	2
ASM - ERA.Net Rus Plus Ru	1
ASM- STCU	1
STCU	4
AERONET NASA/GFSC	1
H2020	3
NATO	1

Funding

Average annual funding of the IAP \approx 1 M€

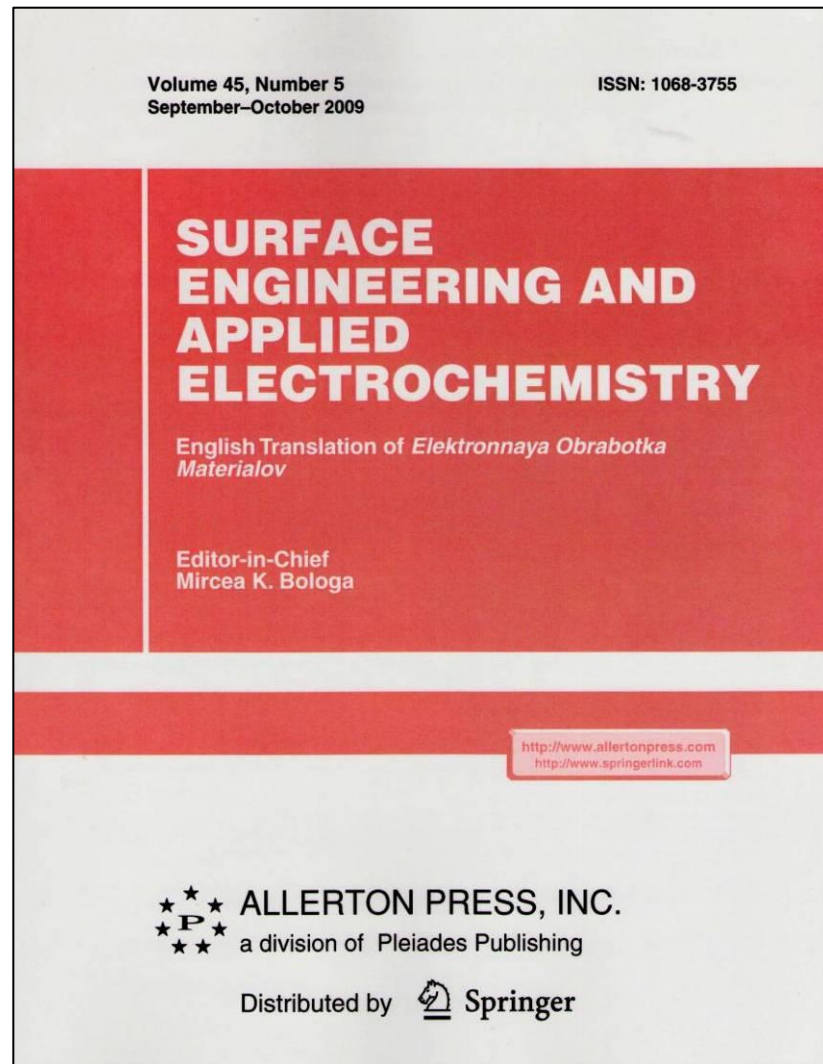
Funding from state budget \approx 65-70%



Funding from
republican contests
 \approx 12-15%

Funding from
international programs
 \approx 18-20%

The Journal of the Institute



Organization of Conferences

Every other year the IAP holds International conferences in Materials Science and Condensed Matter Physics



MSCMP 2018 conference will be organized in September 2018.

Fields of Collaboration

- Technologies for the synthesis of nano-structures of PbS/PbSe, ZnO and nano-wires
- Technologies to obtain multinary compounds, experimental and theoretical description of phenomena in them
- Technologies of metals electro-deposition
- High-density recording and applications of self-mixing interferometry
- Plasmolysis: Technology and device for electrical processing of fruits to make juice
- Crystallography of supramolecular compounds, molecular recognition, crystal engineering, metal organic materials, structure of metal clusters and cluster based polymer, porous zeolite-like metal-organic frameworks
- Low-cost solar cells; renewable sources of energy
- New absorber materials (kesterites) for thin film solar cells
- Hybrid multilayers – magnetic-semiconductor, soft-hard
- Lithographic structures – low-dimensional structures, interface-controlled materials.
- Theoretical physics

Contacts

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