Nanosciences and Nanotechnologies within the Romanian Academy

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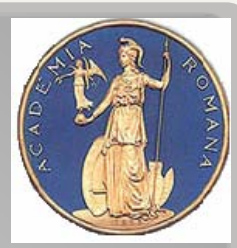
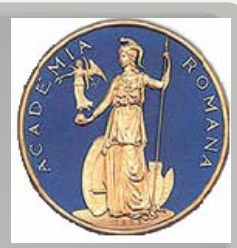
Institutes and Research Centers of the Romanian Academy



- 66 Institutes and Research Centers are coordinated by the Romanian Academy in different research fields as:

1. Philology and literature	8. Engineering Sciences
2. History and archeology	9. Agriculture and forestry
3. Mathematical Sciences	10. Medical Sciences
4. Physical Sciences	11. Economic, Law and Sociological Sciences
5. Chemical Sciences	12. Philosophical, Theological, Psychological and Pedagogical Sciences
6. Biological Sciences	13. Arts, architecture, audio-visual
7. Geonomical Sciences	14. Information Science and Technology

Core Institutes/Centers



- Institute of Biochemistry, Bucharest, www.biochim.ro
- Institute of Biology, Bucharest, www.ibiol.ro
- "Nicolae Simionescu" Institute of Cell Biology and Pathology, Bucharest, www.icbp.ro
- "Ilie G. Murgulescu" Institute of Physical Chemistry, Bucharest, www.icf.ro
- "Petru Poni" Institute of Macromolecular Chemistry, Iasi, www.icmpp.ro
- Institute of Chemistry, Timişoara, http://acad-icht.tm.edu.ro
- Center of Fundamental and Advanced Technical Research, Timişoara, http://acad-tim.tm.edu.ro
- "Costin D. Nenițescu" Center of Organic Chemistry, Bucharest, www.cco.ro

- **Institute of Biology, Bucharest, www.ibiol.ro**
- **"Nicolae Simionescu" Institute of Cell Biology and Pathology, Bucharest, www.icbp.ro**
- **"Ilie Murgulescu" Institute of Physical Chemistry, Bucharest, www.icf.ro**
- **"Petru Poni" Institute of Macromolecular Chemistry, Iasi, www.icmpp.ro**

winners of a competition within the Structural Funds Program – research infrastructure (March 2009 – February 2011, total amount - ~ 42 mil. Euro)

- **Institute of Biochemistry, Bucharest, www.biochim.ro**
- **"Petru Poni" Institute of Macromolecular Chemistry, Iasi, www.icmpp.ro**

post-doctoral schools (Structural Funds Program) (projects under third (last) evaluation, 2010 – 2012, total amount - ~ 7 mil. Euro)

Associate Institutes/Centers

- The Institutes/Centers belonging to the Sections of
  - Mathematical Sciences
  - Physical Sciences
  - Engineering Sciences
  - Information Science and Technology

Institutes/Centers with collaboration capabilities

- The Institutes/Centers belonging to the Sections of
  - Medical Sciences
  - Economic, Law and Sociological Sciences
  - Philosophical, Theological, Psychological and Pedagogical Sciences

Core Institutes/Centers (2005 - 2009)

Human resources: 373 Doctors in Sciences + 201 Highly qualified technical staff + 190 PhD students (average for the mentioned period)

Research infrastructure investment (national programs, European programs, other programs, structural funds):
about 26.7 mil. Euro (+ about 25 mil. Euro up to February 2011)

ISI Scientific papers (international visibility): 423/year (average for the mentioned period)
nano related papers, 12%

National/International Grants: 171/17 (average for the mentioned period)
nano related subjects, 43/10 (average for the mentioned period)

PhD Theses defended: 14/year (average for the mentioned period)
nano related subjects, 32%

International meetings organized (average/year): 8

Core Institutes/Centers (2002 – 2009)

Core Institutes/Centers of the Romanian Academy in *nano-related "top 10" positions* – international visibility (papers)

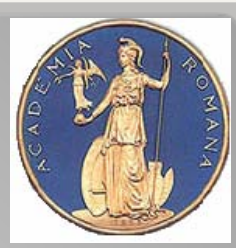
- Chemistry (multidisciplinary)
- Biochemistry and Molecular Biology
- Polymer Science
- Physical Chemistry
- Cell Biology
- Biomaterials
- Materials Science (multidisciplinary)
- Biomedical Engineering
- Medicine and Pharmacy
- Biophysics

Hard Equipments – Core Institutes/Centers

- ***Molecular and Supramolecular Structural Analysis***:
(a) NMR spectrometers, FT-IR, UV-VIS, atomic absorption spectrophotometers, spectrofluorometers and microfluorometers, (b) electronic microscopes (scanning, transmission, SEM with EDAX), atomic force microscopes and optical polarized light microscopes, inverted microscopes, fluorescence/immunofluorescence microscopes, X-Ray diffractometers

- ***Molecular Characterization***: **gel permeation chromatographs, high performance liquid chromatographs coupled with mass spectrometers, gas chromatographs, immunoelectrophoresis, PCR**

- ***Thermal, mechanical and thermomechanical analysis***: **TGA-DTA, DSC, DMA, thermodielectric analyzer, lab-stations and extruders, universal mechanical testing machines (Instron), impact testing machines, modular rheometers (coupled with SALS, optical microscope, magneto-electrical cell, UV-cell), semimicro combustion calorimeters**



- ***Surface properties***: **equipments for the determination of specific surface, SPR equipments**

- ***Electrical properties***: **dielectric spectrometers, tarometers**

- ***Magnetic properties***: **VSM, rotational and oscillatory magneto-rheometer, DLS**

- ***Nano***: **ellipsometers, zetasizers, nanosizers, nano-lithography equipment, complex laser systems**

- ***Thin layers***: **spin-coaters, robot for thin layers deposition, goniometers**

- **Highly specialized *softs*** **(molecular modeling and simulation, properties simulation, numerical simulation),** ***computer clusters***

- ***organic and macromolecular synthesis equipments, materials preparation equipments***

- ***specific equipments for cell cultures and living tissues investigation***

- **Active participation to national networks**
- **Active participation to European networks (ENMat, EuMaT, BIOPLATFORM, POLYSACCHARIDE, UNESCO Global Network for Molecular and Cell Biology, CEEPN)**
- **National cooperation (with more than 20 universities, 20 national RDI institutes, 100 SMEs, 20 companies)**
- **International cooperation (with more than 100 research centers/SMEs)**
- **Applied research**
- **Certified laboratories**

NANOSciences

NANOMaterials

NANOTechnologies

Thank you for your attention!