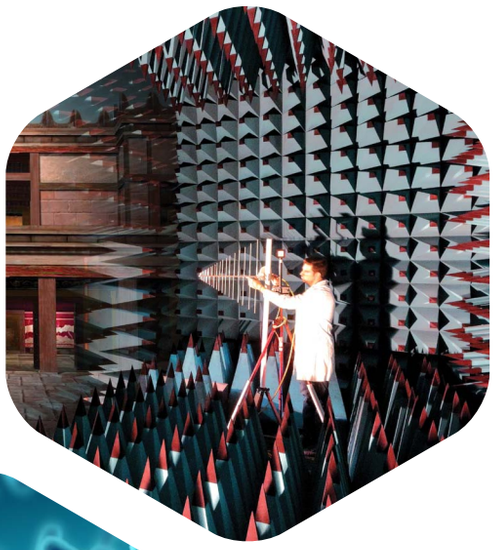
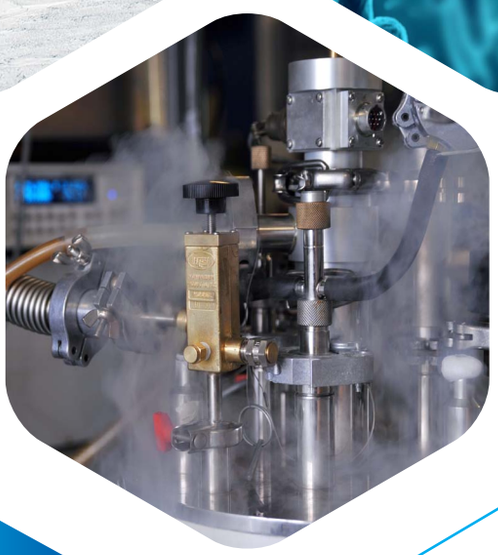
DEMOKRITOS

NATIONAL CENTRE FOR SCIENTIFIC RESEARCH





OVER **50 YEARS**
DEVOTED TO **RESEARCH**
EDUCATION
AND **INNOVATION**

GEORGIOS NOUNESIS
Director

HIGH-IMPACT RESEARCH FOR THE BENEFIT OF THE SOCIETY

"

The National Centre for Scientific Research "Demokritos" is a Public Research Institution founded upon the very principle of freedom to explore while safeguarding the ethical integrity and the openness of Research.

In today's Greek Society Demokritos has a very special role. Its entire operation encompasses the fact that the advancement of scientific and technological knowledge enhances the global strength and impact of the community, and directly benefits the well being of the citizens educationally, culturally and financially.

A MISSION TO DISCOVER

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Driven by the **talent** and dedication of its people, Demokritos strives for the **truth** through **scientific discovery.** In accomplishing its mission, Demokritos pioneers **cutting-edge research** in Physical Sciences; **Educates** young researchers and nourishes their ideas and efforts; Supports **innovation-driven entrepreneurship** disseminating the technological advances; Fosters close and long-lasting collaborations with the **Industry in Greece** and globally; Communicates scientific knowledge to the **society** and **expertly advices** the State on issues of technological criticality.

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OVER 50 YEARS OF WORLD-CLASS RESEARCH

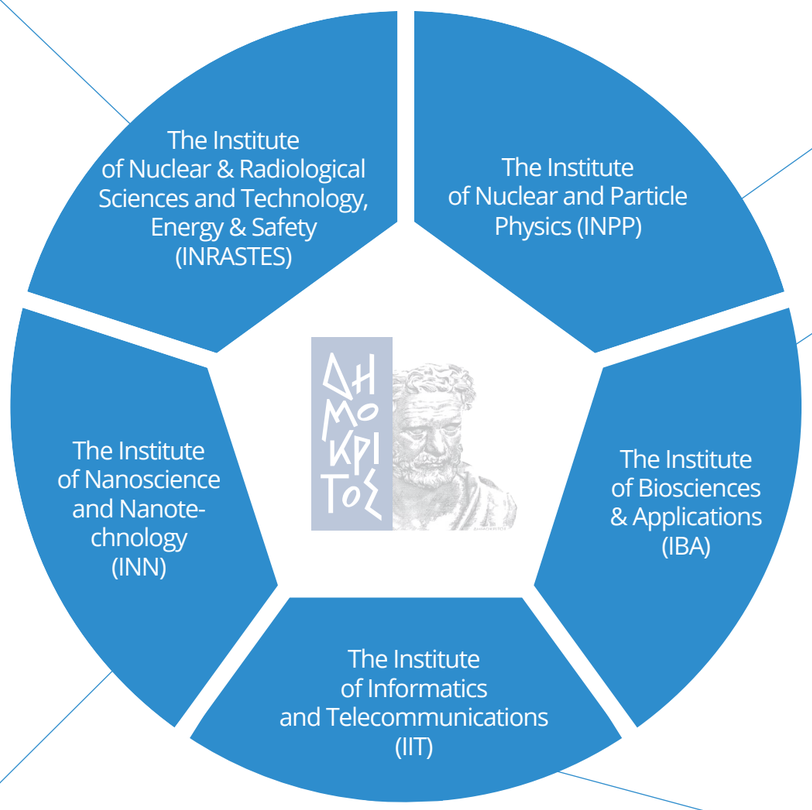
Founded in 1961 as a Research Centre for Nuclear Research, Demokritos is today the largest multidisciplinary Research Centre of Greece with approximately 180 Researchers in tenured and tenure-track positions and over 500 Research Personnel working in projects funded mainly by grants from State Funds, the European Union and Private Industries.
The Centre consists of five independent Institutes focusing on different scientific fields. It is governed by the Board of Directors and is supervised by the General Secretariat of Research and Technology, which is in the Ministry of Education, Research and Religious Affairs of Greece.

Organizational Structure

The Centre consists of **five independent Institutes** with different scientific priorities.

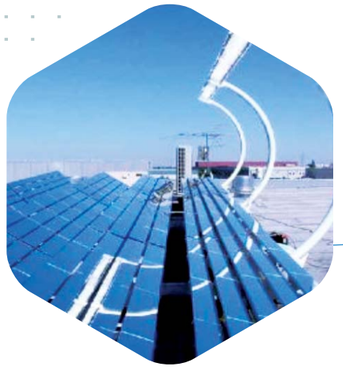
The research activities are supported by:

- the **Administrative Division**
- the **Division of Applied Technologies and R&D Support**
- the **Special Account Department**



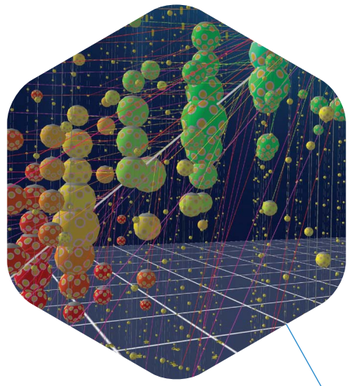
INRASTES

Nuclear technology (Fission / Fusion)
Radioprotection, Radiobiology, Radioecology, Radiopharmacy, Biodiagnostics,
Energy (Solar & Hydrogen Fuel Cells)
Environment Science & Technologies
(Climate Change, Air quality and Health Impact)
Safety & Security



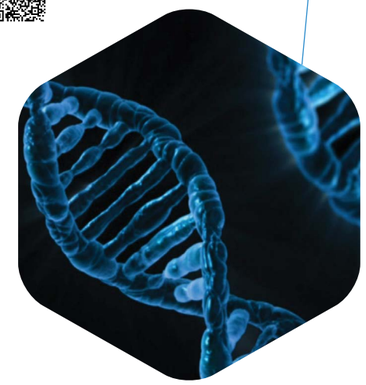
INPP

Tandem Accelerator Laboratory
Nuclear Structure & Nuclear Astrophysics, Ion-Beam and X-Ray Spectrometry Applications in Cultural Heritage, Health and Materials
Astroparticle Physics for the Cubic Kilometer Neutrino Telescope (KM3NeT), operation of the "Nestor" Research Infrastructure for Neutrino Physics with Deep-sea Technologies High-Energy Physics at the LHC/CERN, Yang-Mils theories, Standard Model Phenomenology, Cosmology



IBA

Regulation of Cellular Function/ Cellular Signaling
Ageing and age-related diseases
Precision Medicine
Structural Biology and Biophysics
Microbial and Insect Molecular Genetics
Theoretical Biology and Chronobiology



IIT

Multimedia Processing, Social Network Analysis, Big Data Analysis, Human-Machine Interaction, Antennas and Propagation, Wired and Wireless Telecommunications, Computer and Content/Media Networks, Security and Cybersecurity, Crowd Simulation, Virtual and Augmented Reality, Gamification

INN

Research on Physicochemical Processes and development of Advanced Materials, Innovative Nanodevices and Microsystems for applications in the Industry, the Environment, Energy, Health and Cultural Heritage

Education

As a Public Institution in the national agenda for a Unified Higher-Education/Research Space, Demokritos participates in accredited **Graduate Programs** in collaboration with University Departments in Greece and abroad.
From the sixties to the nineties, it has been a pioneer in **Doctoral Research** by providing the grounds for the completion of a multitude of **Doctorate Theses** in Physical Sciences that have shaped the scientific landscape of Greece for several generations.
Today Doctoral students at the Centre benefit from a **multidisciplinary research environment** and funds originating either from National or European research programs or Fellowships from the **State**, or directly from Demokritos in collaboration with **Public Benefit Organizations** such as the Stavros Niarchos Foundation and **Industries.**

Innovation-Driven Entrepreneurship

Highly committed to supporting innovation and technology-driven entrepreneurship Demokritos is maintaining a dense portfolio of **national and international patents.**
From optical immunosensors for in-vitro diagnostics in clinical applications and the agro food industry, to highly specialized radiopharmaceuticals for diagnostic and therapeutic applications in Oncology the Centre's innovation reflects its **interdisciplinarity** and its **ground-breaking research** efforts.
Demokritos warmly welcomes the efforts of its Researchers for establishing high-technology **spin-off companies.** The Centre can provide **incubator-type services** and partnership until they are ready for scale up.
Moreover Demokritos operates the **"Lefkippos" Technology Park of Attica**, which serves as a pole of attraction for approximately **forty start-up companies** and high-technology SMEs, who are in a continuous, dynamic interaction with the Research Community of the Centre.

Research

Research at Demokritos exploits the interdisciplinary character of the Centre as a major resource for breakthrough and innovative work.
Fields with advancements and accomplishments include:
Nanotechnology and Advanced Materials: functional nanomaterials and nano processes, magnetic, polymeric and electronic materials - photonic applications and devices.
Environmental Science and Technology: climate change, chemical and particle pollution implications to public health - radioecology energy research primarily focused on solar and hydrogen fuel cells.
Life Sciences: basic and applied research in cellular, chemical and structural biology, applied biodiagnostics and nanomedicine.
Nuclear Technology, Radiology, Radiopharmacy and Radioprotection have been strongholds of the Centre since the early days it was established. Today they provide not only important results but also some unique research and education infrastructure for the entire country.
Nuclear and Particle Physics with active collaborations with the high-impact fundamental experiments at CERN as well as accelerator physics research.
Archeometry research activities playing a pivotal role in many national programs focused on the Greek Cultural Heritage.
Informatics and Telecommunications with important contributions to scientific advancements and innovative applications from culture to security to Big Data Analysis. A partner of many interdisciplinary research efforts of the Centre.

Research in figures

2012-2016

2.581 Publications

30.143 Citations

1,76 Publication Impact Factor (Natural Sciences)

SOURCES: • NATIONAL DOCUMENTATION CENTRE
• WEB FOR SCIENCE

Infrastructure

As of 2017, Demokritos coordinates research laboratories that are part of the **National Roadmap of Research Infrastructures.**
These include:

- The National Infrastructure in Nanotechnology, Advanced Materials and Micro/Nanoelectronics **(INNOVATION-EL)**
- The Open-Access Research Infrastructure of Chemical Biology and Target-Based Screening Technologies for Human and Animal Health, Agriculture and the Environment **(OPEN SCREEN)**
- The infrastructure of a Cluster of Accelerator Laboratories for Ion-beam Research & Applications **(CALIBRA)**

Science Communication and Outreach

Science communication and outreach activities are designed aiming towards young people in the **primary and secondary educational levels** as well as **"open-doors"** and **exhibition** events aiming at adults with an interest in Science and Technology.

Funding

Activities undertaken at the Centre consist mainly of Research Contracts with the **European Union, the State of Greece, International Research Organizations** such as the US Department of Energy, the National Science Foundation and the National Institutes of Health, the Qatar National Research Fund and others.
Contracts are also carried out under **Bilateral Research Agreements** between Greece and other Countries all over the world. Moreover, Demokritos establishes research programs funded by **Public Benefit Foundations** and of course by the **Private Industry**. Private enterprises can access the Centre via full-study contracts, or via agreements for specialized technological services. Specialized services are also catered to individuals, especially concerning diagnostic tests of clinical importance.
Some of the busiest **Service Providing Laboratories** of the Centre include the **Molecular Diagnostics Laboratory**, the **Cytogenetics Laboratory,** the **Laboratory for Dioxin Analysis, Laboratories for Environmental Analyses,** for **Solar Energy Cells Testing** etc. The Centre also operates a certified Experimental Animals facility as well as a Public Human Tissue Bank.

Financial Resources

AVERAGE YEARLY REVENUE

25M€

56%
Income from Programs & Services

44%
Public Grants

Human Resources

Personnel TOTAL **1.000**

700
Scientific Personnel

300
Administrative
Technical
Support Personnel

HEALTH
& LIFE SCIENCES
ENVIRONMENT
& CLIMATE
CHANGE
CULTURAL
HERITAGE
ADVANCED
NANOMATERIALS
NANOSYSTEMS
ENERGY
RADIOLOGY
& NUCLEAR
TECHNOLOGY
ICT
SECURITY
BIG DATA

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