



FORTH

<http://www.forth.gr/>

FOUNDATION FOR RESEARCH AND TECHNOLOGY - HELLAS



Nektarios Tavernarakis Chairman, FORTH Board of Directors

Institute of Molecular Biology and Biotechnology, FORTH

Medical School, University of Crete

37 years later...

- **8 Research Institutes** (Heraklion, Rethymnon, Chania, Patras, Ioannina)
- **Crete University Press** (Heraklion, Athens)
- **Skinakas Observatory** (Rethymnon)
- **Science and Technology Park of Crete** (Heraklion)
- **PRAXI Network** (Athens, Heraklion, Thessaloniki, Patras, Volos)

Scientific Publications and Citations (2010-2019)

Source: Web of Science

Publications: 4,927

Citations (without self citations): 87,150

h-index: 101

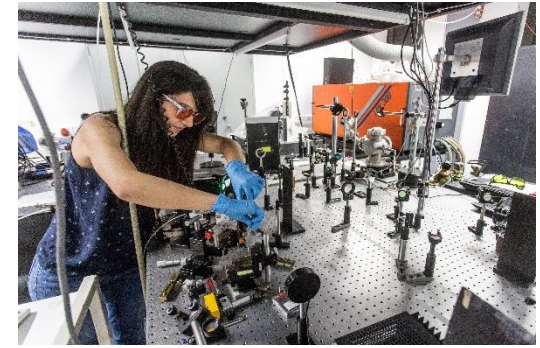
Average citations per item: 17.69

Citing articles (without self citations): 68,362

The People (31-12-2019)

1397 Members

- 104 Researchers
- 148 Collaborating University Professors
- 549 Fellowships/year (incl. Post-Docs)
- 596 Research Associates,
Technical & Administrative Personnel



Permanent Staff: 329 people

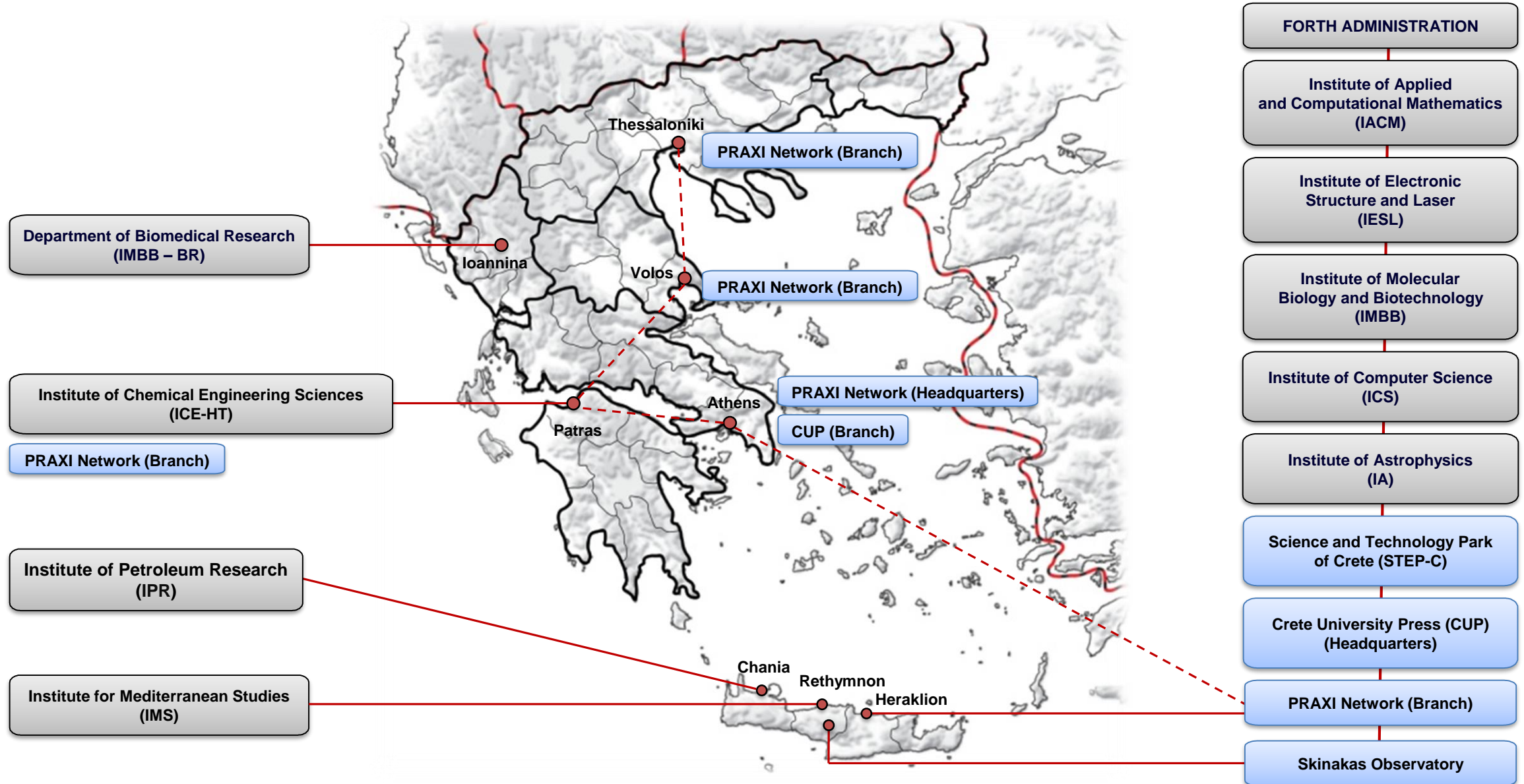
FORTH directives

A public Research Center which forms an environment for promoting Knowledge and Innovation

- **Targeted Scientific Research**
 - ✓ Selected strategic areas of high added value
- **Training and Education**
 - ✓ Highly skilled human resources
 - ✓ Close links with Universities
- **Exploitation of scientific outcome**
 - ✓ Knowledge and Innovation as drivers for economic development

➤ **Emphasis on Excellence**

FORTH throughout Greece



FORTH today:

A Research Center of Scientific and Technological Excellence

- Ranks **1st** among Research Centers in Greece,
in all comparative evaluations conducted by international committees over the past 20 years
- Ranks **1st**, by the European Commission, among all Greek Research Centers and Universities
- Ranks **1st** in *Nature's INDEX* of Research Institutions in Greece
- State-of-the-art research facilities and expertise
(European Research Facility in Lasers, Polymers, Cultural Heritage & Genomics sectors)
- FORTH researchers have received **33** *ERC Grants*, **150** *Marie-Curie Excellence Awards* and numerous international distinctions

Competitiveness for European funding

Monitoring Report “H2020”


	Top-50 REC organisations	Country	No of Project
1	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	France	289
2	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV	Germany	243
3	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	France	149
4	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Spain	130
5	CONSIGLIO NAZIONALE DELLE RICERCHE	Italy	121
6	MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V.	Germany	118
7	Teknologian tutkimuskeskus VTT Oy	Finland	77
8	DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV	Germany	76
9	FUNDACION TECNALIA RESEARCH & INNOVATION	Spain	67
10	FOUNDATION FOR RESEARCH AND TECHNOLOGY HELLAS	Greece	65
11	INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)	France	64
12	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO	Netherlands	62

FORTH at the top

RANKING WEB OF RESEARCH CENTERS

RepositoriesHospitalsBusiness SchoolsUniversities

HOME NORTH AMERICA LATIN AMERICA EUROPE ASIA AFRICA ARAB WORLD OCEANIA COUNCILS / ACADEMIES RANKING BY AREAS



Consejo Superior de Investigaciones Científicas

[Home](#) » [Europe](#) » Greece

Current Edition

Annual 2017 Edition
Data collected during January 2017

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About the Ranking

- Methodology
- Objectives


Resources

- Best Practices
- Links

Greece

ranking	World Rank	Institute	Size	Visibility	Rich Files	scholar
1	142	Foundation for Research and Technology Hellas	750	265	250	224
2	254	Demokritos National Centre for Scientific Research	772	729	278	269
3	507	Centre for Research and Technology Hellas	761	1246	676	634
4	513	Institute of Computer Science	1732	508	1191	1109
5	514	National Observatory of Athens	668	852	1179	487
6	712	Research Academic Computer Technology Institute	524	861	2180	183
7	771	Academy of Athens	712	1956	594	2058
8	817	National Hellenic Research Foundation	2547	1282	1260	886
9	860	Informatics and Telematics Institute CERTH	1993	1183	1682	742
10	873	Hellenic Centre for Marine Research	461	863	2395	630

ITE



FORTH Institutes

In Heraklion, Crete

- **Institute of Electronic Structure and Laser (IESL)**
- **Institute of Molecular Biology and Biotechnology (IMBB)**
- **Institute of Computer Science (ICS)**
- **Institute of Applied and Computational Mathematics (IACM)**
- **Institute of Astrophysics (IA)**

In Rethymnon, Crete

- **Institute for Mediterranean Studies (IMS)**

In Chania, Crete

- **Institute of Petroleum Research (IPR)**

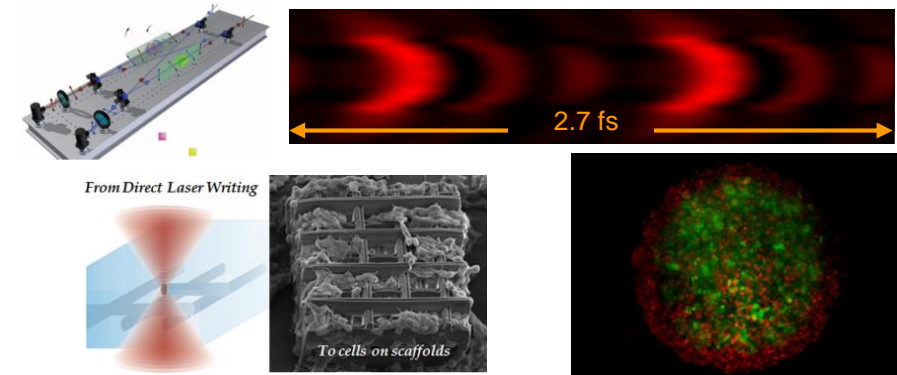
In Patras, Peloponnese

- **Institute of Chemical Engineering Sciences (ICE-HT)**

Institute of Electronic Structure and Laser

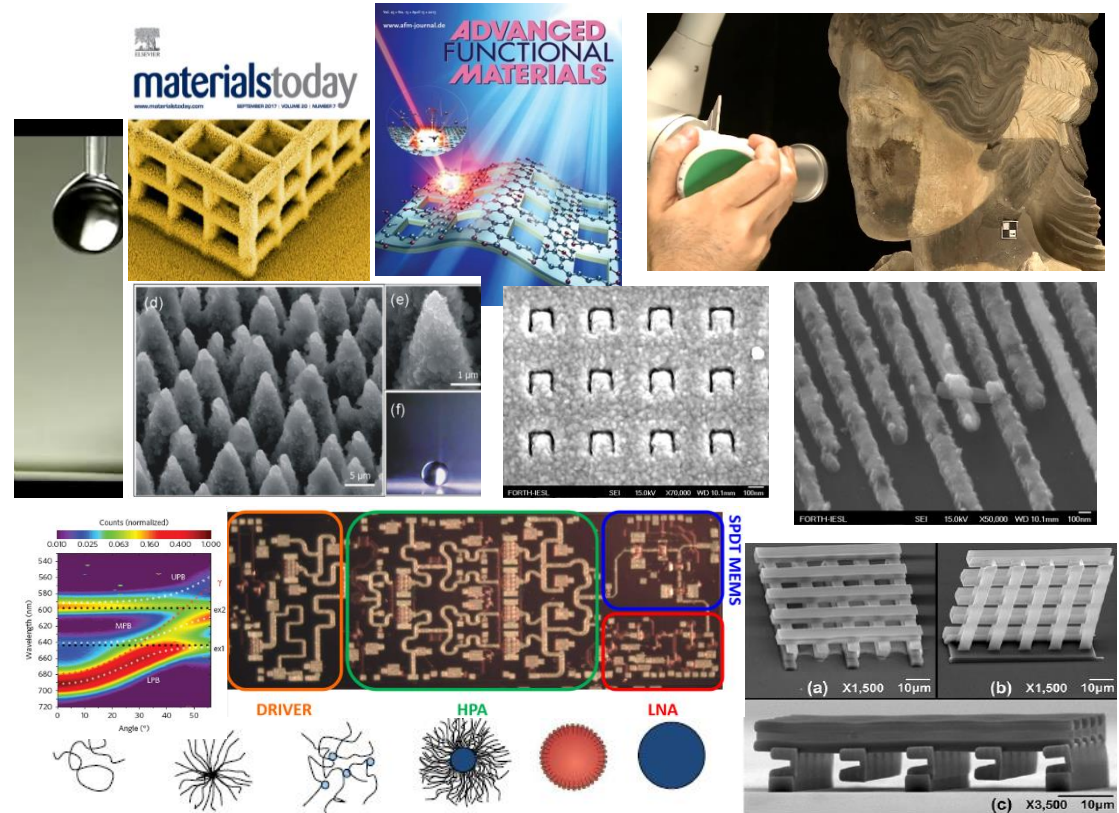
 **Laser Interactions and Photonics Division**

- ✓ Strong Field Physics
- ✓ Dynamic Processes in Atoms, Molecules and Materials
- ✓ Theoretical Atomic, Molecular & Optical Physics
- ✓ Photon Science Applications
 - ❑ Biophotonics - Bioimaging
 - ❑ Laser Processing of Materials
 - ❑ Diagnostic Methods and Instrumentation
 - ❑ Cultural Heritage Science
 - ❑ Photonics for Agrofood and Environment



 **Materials and Devices Division**

- ✓ **Micro/Nano-electronics**
 - ❑ Semiconductor heterostructures & nanostructures
 - ❑ Nanophotonics
 - ❑ Quantum technologies
 - ❑ High frequency electronics & smart systems
 - ❑ Carbon & 2D electronics
 - ❑ Technologies for energy and power
 - ❑ Transparent Conductive Materials
- ✓ **Soft Matter**
 - ❑ Polymer & Colloid Science
 - ❑ Hybrid Nanostructures
- ✓ **Magnetic Materials**
- ✓ **Theoretical Condensed Matter Physics**
- ✓ **Photonic, Phononic and Metamaterials**

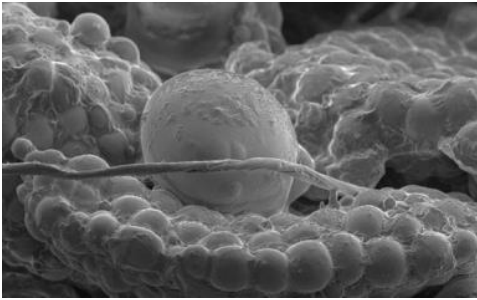


➤ **Astrophysics and Astronomy (Skinakas Observatory)**

→ **Institute of Astrophysics (2018)**

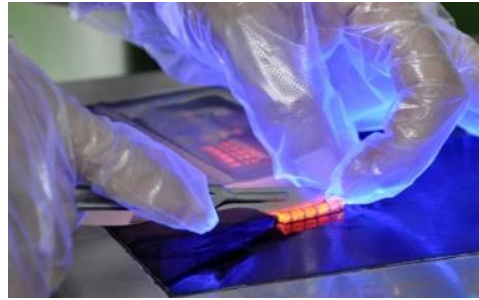
Institute of Molecular Biology & Biotechnology

Current Research Activities



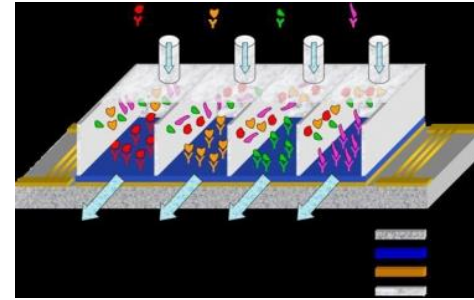
NEUROSCIENCES

- Neural Development
- Computational Neuroscience
- Neurogenetics & Neuronal Ageing



DEVELOPMENT & GENE EXPRESSION

- Gene Regulation / Epigenetics
- Chromatin & Gene Expression
- Plant Biology
- Genomics / Bioinformatics



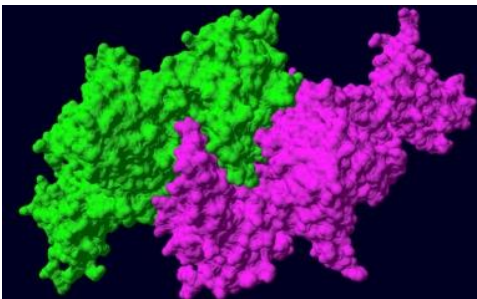
NANO / BIOTECHNOLOGY

- Biosensors
- Enzyme Technology & Genomics



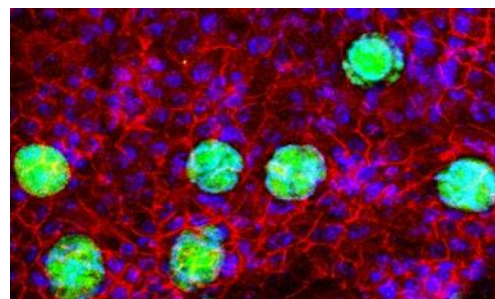
ANCIENT DNA LAB

- A new view to the past



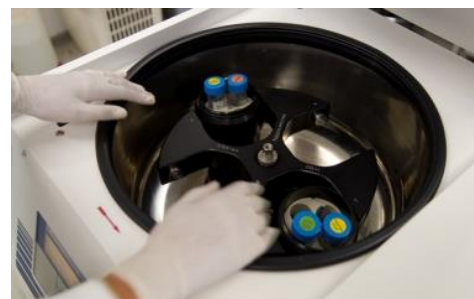
STRUCTURAL BIOLOGY

- Protein Trafficking
- Protein Structure



INFECTIONS & IMMUNITY

- Pest & Disease Control
- Cellular & Molecular Immunology
- Inflammation & Cancer



BIOMEDICAL RESEARCH (Ioannina)

- Endothelial Biology
- Stem Cells/Differentiation



TRANSLATIONAL MEDICINE

- Mouse models for human disease
- Autoimmunity
- Precision Medicine Services

Institute of Computer Science

Research Laboratories

- **Computer Architecture and VLSI Systems**
- **Distributed Computing Systems and Cybersecurity**
- **Telecommunications and Networks**
- **Information Systems**
 - **Center for Cultural Informatics**
- **Human - Computer Interaction**
- **Signal Processing**
- **Computational Vision and Robotics**
- **Computational BioMedicine**
 - **eHealth Applications and Services**

R&D Programmes

- **Ambient Intelligence**
- **Data Science**
- **Advanced Hybrid Imaging Systems**

Service Provision Departments

- **Systems and Networks**
 - **FORTHcert**
- **[.gr, .ελ] Domain Registry**

Administrative and Operational Departments

- **ERCIM Office**
- **W3C Greek Office**

Certified managerial structures and practices
ISO 9001, 27001

Institute of Applied & Computational Mathematics

IACM members across groups contribute to **key research activities**:

- Geosciences applications (Geophysical Flows, Underwater Acoustics, Risk assessment / modelling of rare events (Tsunami modelling / Flood, ...), Geo-archeological applications, Weather and Climate Prediction, Science of Cities),
- Biomedical applications (Systems Biology applications, Systems Pharmacology, Neurosciences),
- Mechanics and Materials (Design of New Materials, Multiscale Modelling and Simulations, Software for Engineering applications),
- Data science and Artificial Intelligence (Machine learning / Data Analytics, Applied Statistics, Data assisted modelling).

Divisions/Groups:

Applied Analysis and Modeling Division, Groups: Applied Analysis, Mesoscale & Continuum Modelling, Molecular Modelling

Numerical Analysis and Computational Science Division

Groups: Data Science Programme, Computational Biomechanics, Scientific Computing and Software Development

Lab: Statistical Learning Laboratory

Applied Science Division, Groups: Underwater Acoustics, Regional Analysis, Computational Neurosciences, Computational Pharmacology, Socio-Education Research and Innovation

Labs: Coastal & Marine Research Laboratory, Remote Sensing Laboratory, Underwater Measurements Laboratory

Institute for Mediterranean Studies



Three axes of research:

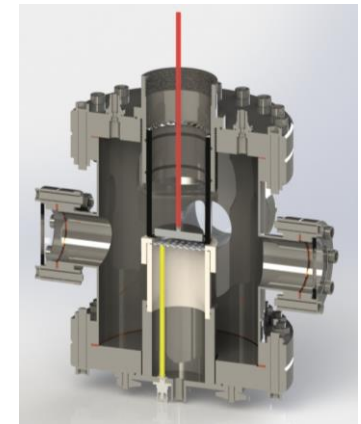
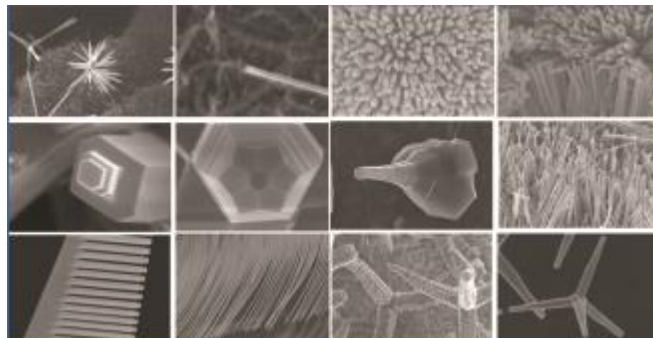
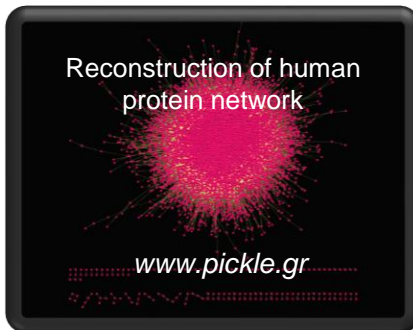
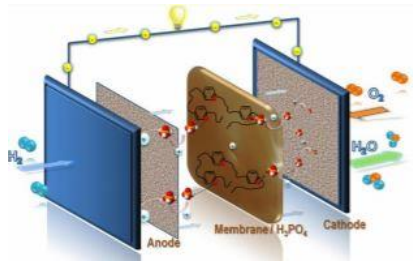
1. Mediterranean History
2. Mediterranean Culture
3. Mediterranean cultural heritage and technology

Institute of Chemical Engineering Sciences

Nanotechnology / Advanced
Materials

Energy / Environment

Biosciences / Biotechnology



Institute of Astrophysics

➤ Targeted Scientific Research

- ✓ Theoretical Astrophysics (compact objects, high-energy astrophysics, ISM physics)
- ✓ Observational Astrophysics (ground based and space born)

➤ Major Research Infrastructures

- ✓ Skinakas Observatory - @1750m altitude, ~50km from Heraklion
- ✓ High Performance Computing cluster “Metropolis” of the Dept. of Physics

➤ Education and Public Outreach

- ✓ Training of students and postdocs in modern astrophysics
- ✓ Organizing astronomy stargazing PO events across Crete – engaging public in science

➤ Small in size - Emphasis on Excellence – “Boutique” Institute

Institute of Petroleum Research

Research directions:

➤ **Petroleum Exploration**

Basic and applied research in petroleum basins (Geology, Geophysics, Geochemistry)

➤ **Petroleum Production**

Basic and applied research in drilling and production of petroleum reservoirs (Drilling Engineering, Production Engineering)

➤ **Safety and Environment)**

Basic and applied research for safe and environmental friendly exploitation of oil and gas reservoirs (Environmental Engineering)

Crete University Press

Crete University Press (CUP), a non-profit and self-financed organization, was founded in 1984 as a branch of Foundation for Research and Technology, with an initial donation of Pancretan Association of America. CUP publishes books for the student, the scientist and the general reader, covering the fields of Science, Humanities, Historical and Social Sciences as well as the Arts. Since 2015 CUP offers free online education through Mathesis programme.



The aims of CUP are:

- ▶ To form a **high quality scientific bibliography** in the field of Sciences, containing both translated and original studies, and to cultivate the Greek language as far as scientific and technological terminology is concerned.
- ▶ To provide an accessible editing platform for **original scientific research** in the fields of Social Sciences and Humanities, as well as to publish reference books for researching and educational aims.
- ▶ To **disseminate the scientific ideas and the ethos of scientific methodology**, publishing popular science books, as well as to provide valid information on issues concerning the ordinary citizen.
- ▶ To offer the general public free and high quality online courses by distinguished university teachers (Mathesis Programme).

Science and Technology Park of Crete (STEP-C)

Mission:

- Make available FORTH's and other academic communities significant research deliverables and become the 3rd development pole of the Region, next to agriculture and tourism
- Encourage companies to join the Park and become major vehicles of Technology Transfer
- Become a Center of Learning
- Contribute to regional development

Main competences:

ICT
Bio
Materials & Laser applications
Services



Incubator

More than 100 offices and flexible lab space constructed (~4000 sq.m)

Financing: EU, National & Regional funds

Incentives offered by FORTH

Incentives offered by the National Government (spin-offs, Incubators, Technology Transfer)

2019: 29 tenants (~180 employees, mostly ICT)

Incubator supporting start-ups and offers specialised services

Support students & researchers (student entrepreneurship programmes)

Over 60 companies supported during the last 20 years

Over 1500 new jobs created

PRAXI help-forward network



PRAXI Network's mission is to make Greek enterprises and laboratories more competitive via

- › the linkage between research and industry
- › the promotion of innovation & entrepreneurship
- › the provision of high added value services

Technology transfer & Innovation support

Technology Transfer



Operates the Technology Transfer Office of FORTH

Business Innovation



Member of the Enterprise Europe Network and coordinator of the Enterprise Europe Network – Hellas

Technology Innovation



Coordinator of the European node of ASEM – Cooperation Centre for Science, Technology and Innovation - CCSTI

Technology Transfer



Member of the European Technology Transfer Offices (TTO) Circle

Research Technology



National Contact Point for the Framework Programmes for RTD (Horizon 2020)

Foresight Research



Awarded the UNESCO Chair on Futures Research – operated by its Foresight Unit



- Building isolated from DNA analysis (*DNA free*)

- Insulated rooms with positive pressure gradient

- HEPA filter ventilation

- Central vacuum cleaning

- Furniture & clothing from non-biological materials

- Exclusive equipment

- Bleach-peroxide & UV light decontamination

- Controlled & restricted access

- Detailed protocol of interventions

- Standard and certified procedures

- Forensics grade consumables



Scientific Interests

**The study of the origin/migration/evolution
of human populations**

**Genetic identification of individuals of the
past and phenotype determination**

**Reconstruction of the evolutionary history of
animal species and species molecular
identification**

Investigation of diet habits of the past people

Tracing of ancient pathogens

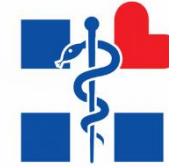
The Greek National Network for Precision Medicine



MINISTRY OF EDUCATION



GENERAL SECRETARIAT FOR
RESEARCH AND TECHNOLOGY



MINISTRY OF HEALTH

- **1 Unit in Heraklion, Crete:**

- FORTH Collaborating Institutions**

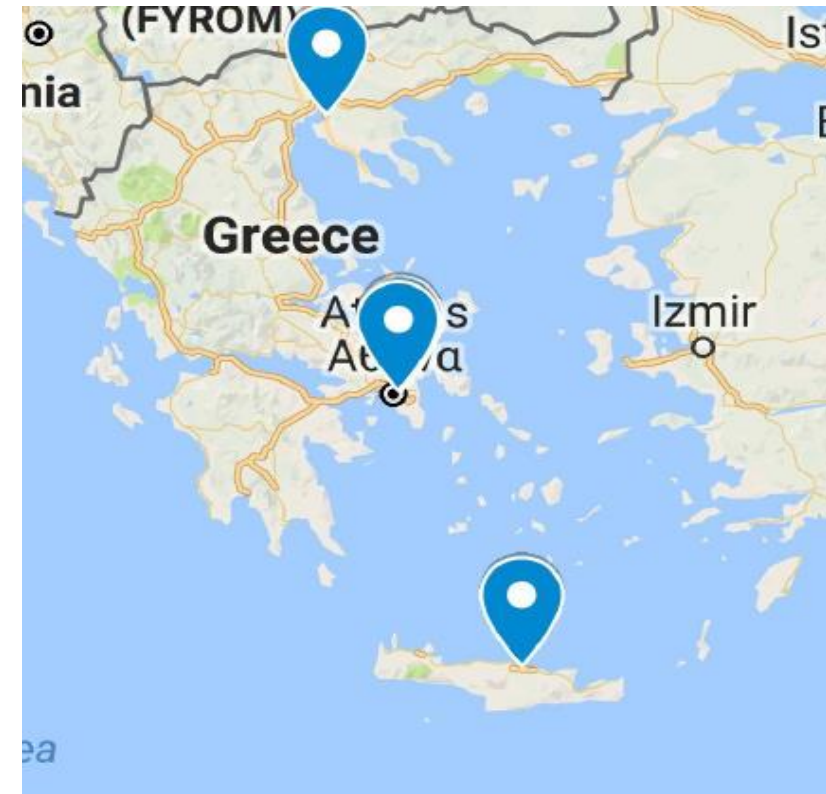
- Institute of Molecular Biology and Biotechnology
 - Institute of Computer Science

- UNIVERSITY OF CRETE - School of Medicine**

- Oncology
 - Haematology
 - Pathology

- **1 Unit in Thessaloniki**

- **2 Units in Athens**



Our vision @ FORTH...

Create and maintain an environment that fosters

Learning, Research and Innovation

as pillars for sustainable Regional, National and European

Socio – Economic Growth