



ITALY: THE BEAUTY OF SCIENCE

RESEARCH, KNOWLEDGE, INNOVATION







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Some aspects of Italian culture and life-style are world renowned: its history and cultural heritage, its contribution to arts, to fashion and to culinary art, not to mention its breathtaking natural beauties, which are there to testify the uniqueness of this country. Indeed, Italy has more UNESCO World Heritage sites than any other country in the world.

But Italy is more than just that: it is also a Country of Knowledge, that gave birth to some of the oldest universities in the world and to the inventor of Modern Science, Galileo Galilei.

Today, Italy is a Country of Science, Research and Innovation, nurturing generations of brilliant minds who contribute to some of the most important scientific endeavors in the world.

In 2019 we celebrate the 500th birthday of another famous Italian, Leonardo da Vinci. Leonardo was not only an artist, but a scientist and a researcher. In this occasion, the Italian Ministry of Foreign Affairs and International Cooperation (MAECI) is glad to present at the World Conference of Science Journalists some highlights of what Italian public research agencies are doing in a number of different scientific fields: from Particle Physics to Environment Protection, from Robotics to Planetology, Astrophysics and Space Sciences, from Climate Change studies to Arctic research and Gravitational Waves detection.

What is shown are examples of how Italian research system contributes to the improvement of knowledge and the wellbeing of society. Roots are long-standing and amazingly important for us: they contribute to build a brilliant future for the Italian research.



CMCC CENTRO EURO-MEDITERRANEO SUI CAMBIAMENTI CLIMATICI THE CMCC FOUNDATION

CMCC Foundation (Fondazione CMCC, Centro Euro-Mediterraneo sui Cambiamenti Climatici) is an Italian research organization that conducts and promotes scientific and applied activities within the scope of international climate change research. Founded in 2005, CMCC aims to gain in-depth knowledge on climate variability, its causes, and its consequences, through the development of high-resolution simulations using global models of the Earth System as well as regional models.

The Center is organized in the form of a network distributed throughout the country which involves and connects several entities working together on multidisciplinary studies concerning issues of interest to the climate sciences.

Aiming at enhancing the integration and collaboration among interdisciplinary skills needed to deal with climate sciences related topics, CMCC participates in cutting-edge research, collaborates with more than 700 institutions from around 70 countries, and acts as an institutional reference point, both at national and at international level, for policy decision-makers, public bodies as well as public and private entities, whenever they require technical-scientific support.

The CMCC's Supercomputing Center is the only computational facility in Italy specializing in Climate Change research. It provides the technological infrastructure and the computational capabilities needed in order to develop simulations and models able to provide accurate, detailed and better-defined results.

CNR CONSIGLIO NAZIONALE DELLE RICERCHE ITALIAN NATIONAL RESEARCH COUNCIL

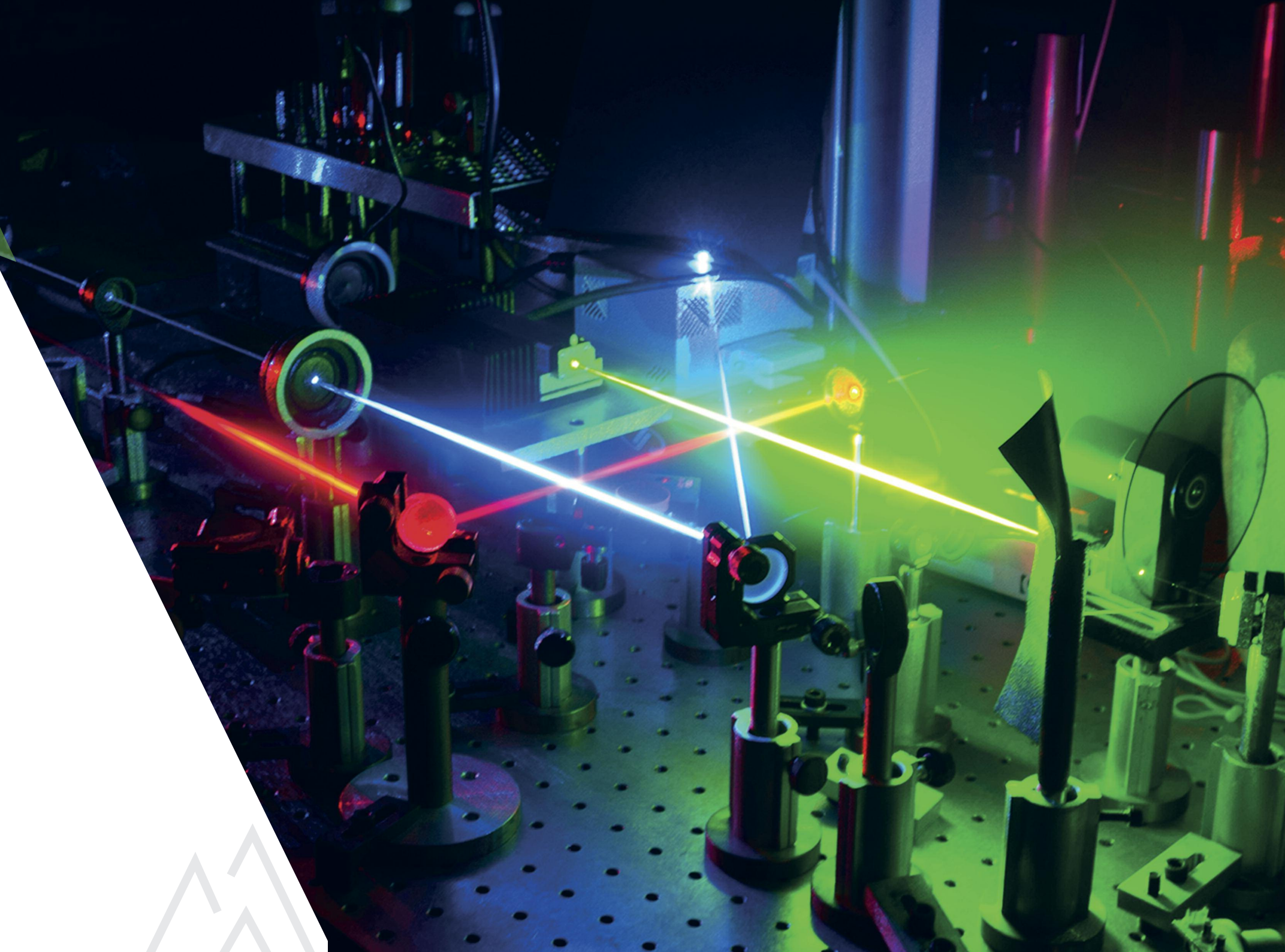
The National Research Council (CNR) is the largest public research institution in Italy and one of the major on international standing. Founded in 1923, CNR implements research projects, promotes innovation and industrial competitiveness, internationalization of national research and provides technologies and solutions to emerging needs. Objectives achieved by a wealth of human resources of over 8,500 employees, of whom more than 60% are researchers and technologists, and thousands of young ones.

CNR is structured into 7 departments expressing its multidisciplinary: Earth and environment; Bio and agri-food; Biomedical sciences; Physics and matters; Engineering, ICT, Energy and transportation; Chemistry and materials technology; Human sciences and cultural heritage. Its 100 research institutes, therefore, cover the main fields of scientific and technological knowledge, with offices and laboratories throughout the country and abroad, including the Arctic and Antarctic stations. CNR counts thousands of operative collaborations with universities, public institutions and private companies.

CNR ranks first place in Italy in terms of number of patent families, spin-offs and grants ERC, and leads EU flagship projects on frontier issues such as 'blue growth' and quantum technologies. CNR played a pioneering role in genetics, biophysics, neurobiology, cybernetics, computer science and telematics, optics, thanks also to Nobel Prize winners as Enrico Fermi, Giulio Natta, Rita Levi Montalcini, Renato Dulbecco.



Italian National
Research Council





GSSI GRAN SASSO SCIENCE INSTITUTE SCHOOL OF ADVANCED STUDIES

The Gran Sasso Science Institute (GSSI) is an international PhD school and a center for research and higher education in the areas of Physics, Mathematics, Computer Science and Social Sciences. GSSI is based in L'Aquila.

Supported by the Organization for Economic Cooperation and Development (OECD), the GSSI has been instituted as a new Italian graduate school of advanced studies in 2016.

Located in central Italy, the school welcomes professors, researchers and students selected internationally following the best graduate schools standards worldwide. Every year we offer Post doctoral grants and research opportunities thus facilitating the attraction of high-level resources.

Gravitational waves, mathematic models for robotics, smart cities and post natural disaster resilience: research at GSSI has a multidisciplinary approach. Through a daily interaction, researchers have the opportunity to experience contamination of interests and multicultural exchanges. Among our goals are the dissemination of scientific results towards society, the promotion of cultural events for generic public and schools, the interaction with public and private realities in order to stimulate innovation and knowledge based communities.

Further, the GSSI's aim is to promote collaborations with national and international institutions and to strengthen the scientific excellence in L'Aquila area, where highly specialized structures, such as the Gran Sasso National Laboratories of the National Institute for Nuclear Physics (INFN) and the University of L'Aquila, are already present.

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IIT ISTITUTO ITALIANO DI TECNOLOGIA ITALIAN INSTITUTE OF TECHNOLOGY

Istituto Italiano di Tecnologia is a scientific research center established in 2003 by the Italian Ministry of Education, University and Research and the Ministry of Economy and Finance to promote excellence in both basic and applied research and to facilitate the economic development at national level. Scientific activities started in 2006 with a very strong attitude towards technology transfer.

IIT headquarters are in Genova and research activities are carried out in 11 satellite centers across Italy and 2 outstations in USA. IIT staff consists of about 1700 people coming from more than 60 countries and with an average age of 34 years. From 2006 IIT received private and no-profit funding, accounting for more than 238 million euros thanks to competitive grants and industrial partnerships. Main projects include: the EU Graphene FET Flagship, IIT-INAIL Rehab Technologies, the Nikon Imaging Center and 30 European Research Council grants. More than 200 European competitive projects and 500 industrial projects were won totally.

Publications are more than 11800, inventions 248, and the originated spin-offs are 18. IIT's scientific vision is based on the concept of "translating evolution into technology", mimicking natural solutions to develop new technologies in the fields of robotics, new materials and life science. The main goal is to produce technologies that will have a positive impact on important societal challenges, such as environmental sustainability, healthcare and aging society.





INAF ISTITUTO NAZIONALE DI ASTROFISICA NATIONAL INSTITUTE FOR ASTROPHYSICS

The Italian National Institute for Astrophysics, INAF, is the main Italian research institute for the study of the Universe.

INAF promotes the enhancement of the research results conducted or coordinated by its scientific network for productive and social purposes, including technology transfer. It promotes higher education, as well as any other educational event, in Italy and abroad, in collaboration with universities.

INAF promotes the development of astronomical knowledge in schools and society through dissemination, educational and outreach activities. INAF protects, preserves and enhances its bibliographic, archival and instrumental historical heritage. INAF acts as a scientific and technical consultant on matters within its competence, in favor of the Ministry of Education, University and Research.

INAF collaborates with Italian and foreign research institutes, universities, international organizations, space agencies and corporate stakeholders in the sector.

The Institute is present throughout Italy with 16 research facilities and the administrative headquarters, moreover has a facility in the Canary Islands where the Galileo National Telescope is located. The research institute is also in space, through its hardware contribution to satellites and telescopes, which allow us to study our planet and to discover more about the near as well as remote Universe.

INAF principal motivation is to enable progress in astrophysics, but the new technologies that we are developing along the way have been and will be applied also to the improvement of everyday life.

Italian astrophysical research has earned a leading role in this field during the last 20 years, achieving fundamental results and driving new large experiments that will become operational in coming years.

INAF



ISTITUTO NAZIONALE DI ASTROFISICA
NATIONAL INSTITUTE FOR ASTROPHYSICS

INFN ISTITUTO NAZIONALE DI FISICA NUCLEARE NATIONAL INSTITUTE FOR NUCLEAR PHYSICS

In Italy, basic research in the field of fundamental constituents of matter and their interactions is conducted by INFN, Istituto Nazionale di Fisica Nucleare, a public research Institute that operates under the supervision of MIUR, the Italian Ministry of Education, University and Research.

INFN is a community of about 6000 people committed to ensuring that fundamental research provides its best results. Examples of this fact are the historical achievements of recent years with the Nobel prize winning discoveries of the Higgs boson and gravitational waves.

Founded in 1951 with the aim to follow up the researches of Enrico Fermi, nowadays INFN is present throughout Italy and it works in close cooperation with universities. At the same time, it also has a significant international dimension, taking part in the most relevant projects all over the world.

INFN indeed carries out both theoretical and experimental research in the field of nuclear, subnuclear and astroparticle physics, as well as technological research. In order to conduct its experiments, it designs and produces, in its own laboratories and in collaboration with industry, cutting-edge technologies that often lead to useful spin-offs for society, in the medical, cultural heritage and environmental sectors, for examples.

For all that, INFN has a significant impact on the progress of knowledge and on the technological development. Aware of its role in the society, INFN is strongly committed to technology transfer, advanced training, and dissemination of scientific culture.





ISPRA

ISTITUTO SUPERIORE PER LA PROTEZIONE E LA RICERCA AMBIENTALE
ITALIAN INSTITUTE FOR ENVIRONMENTAL PROTECTION AND RESEARCH

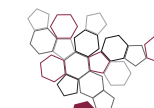
ISPRA is a public research body operating with technical-scientific independence at the service of Citizens and Institutions. Main mission of the Institute is to protect the environment, by monitoring, evaluating, controlling, inspecting, managing and disseminating information and research, developing modern and effective methodologies.

Geology, soil protection, air pollution, biodiversity, wildlife, waste, water, sea, urban areas, environmental data are the major focus of ISPRA activities and research. The Institute supports governmental policies of the Ministry of the Environment networking with European environmental bodies.

More than 1200 Ispra researchers and technical staff are based in one head office in Rome and seven local premises in different parts of Italy. ISPRA has 28 environmental laboratories operating in 5 areas (biology, chemistry, ecotoxicology, physics and metrology); marine activities area has 2 oceanographic boats and 1 diving robot. The Institute coordinates the Italian System for Environmental Protection (SNPA), based on 21 Regional Agencies for Environmental Protection (ARPA). SNPA is a System of 10,000 people dedicated to study, monitor and protect local territories in Italy.



ISPRA
Istituto Superiore per la Protezione
e la Ricerca Ambientale



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