

Bruno Pontecorvo  
Marina di Pisa 1913 – Dubna 1993



I  
N  
F  
N

Italian National  
Institute for  
Nuclear Physics

in numbers



**Head Office**, Piazza dei Caprettari, 70 - 00186 Roma

**Administrative HQ**, Via Enrico Fermi, 40 - 00044 Frascati (RM)

**Communications Office**, Piazza dei Caprettari, 70 - 00186 Roma

#### National Centres

**CNAF**, V.le Bert Pichat, 6/2 - 40127 Bologna

**GSSI** (Gran Sasso Science Institute), V.le Francesco Crispi, 7 - 67100 L'Aquila (AQ)

**TIFPA** (Trento Institute for Fundamental Physics and Applications), Via Sommarive, 14 - 38123 Povo (TN)

#### National Laboratories

**LNF** (Laboratori Nazionali di Frascati), Via E.Fermi, 40 - 00044 Frascati (RM)

**LNGS** (Laboratori Nazionali del Gran Sasso), S.S. 17bis Km 18,910 - 67010 Assergi (AQ)

**LNL** (Laboratori Nazionali di Legnaro), V.le dell'Università, 2 - 35020 Legnaro (PD)

**LNS** (Laboratori Nazionali del Sud), Via S. Sofia, 62 - 95125 Catania

#### Divisions

**BARI**, Via E. Orabona, 4 - 70126 Bari

**BOLOGNA**, V.le Bert Pichat, 6/2 - 40127 Bologna

**CAGLIARI**, Strada Prov. per Sestu Km 0,700 - 09042 Monserrato (CA)

**CATANIA**, Via S. Sofia, 64 - 95123 Catania

**FERRARA**, Via G. Saragat, 1 - 44100 Ferrara

**FIRENZE**, Via G. Sansone, 1 - 50019 Sesto Fiorentino (FI)

**GENOVA**, Via Dodecaneso, 33 - 16146 Genova

**LECCE**, Via Arnesano - 73100 Lecce

**MILANO**, Via Celoria, 16 - 20133 Milano

**MILANO BICOCCA**, Piazza della Scienza, 3 - 20126 Milano

**NAPOLI**, Via Cintia Complesso Universitario Monte S. Angelo - 80126 Napoli

**PADOVA**, Via Marzolo, 8 - 35131 Padova

**PAVIA**, Via Bassi, 6 - 27100 Pavia

**PERUGIA**, Via A. Pascoli, c/o Dip. di Fisica - 06123 Perugia

**PISA**, Largo B. Pontecorvo, 3 - 56127 Pisa

**ROMA**, P.le A. Moro, 2 - 00185 Roma

**ROMA TOR VERGATA**, Via della Ricerca Scientifica, 1 - 00133 Roma

**ROMA TRÉ**, Via della Vasca Navale, 84 - 00146 Roma

**TORINO**, Via P. Giuria, 1 - 10125 Torino

**TRIESTE**, Via Valerio, 2 - 34127 Trieste

#### Associated groups

**ALESSANDRIA**, Via Teresa Michel, 11 - 15121 Alessandria

**BRESCIA**, Via Valotti, 9 - 25133 Brescia

**COSENZA**, Dipartimento di Fisica Unical Via P.Bucci, Cubo 31 - C87036 Arcavacata di Rende (CS)

**L'AQUILA**, Via Vetoio Loc. Coppito - 67010 L'Aquila

**MESSINA**, Contrada Papardo, sal. Sperone, 31 - 98161 Villaggio S. Agata (ME)

**PARMA**, Parco Area delle Scienze, 7/A - 43124 Parma

**SALERNO**, Via Ponte don Melillo 1 - 84084 Fisciano (SA)

**SANITA'**, V.le Regina Elena, 299 - 00161 Roma

**SIENA**, Via Roma, 56 - 53100 Siena

**UDINE**, Via delle Scienze, 206 - 33100 Udine

Written and published by: INFN Communications Office

Graphic design and layout: Francesca Cuicchio – INFN Communications Office

Printed in January 2013

#### Head Office

Piazza dei Caprettari, 70 - 00186 Rome, Italy

Telephone +39 06 6840031

[www.infn.it](http://www.infn.it)

[presidenza@presid.infn.it](mailto:presidenza@presid.infn.it)

#### Communications Office

Piazza dei Caprettari, 70 - 00186 Rome, Italy

Telephone +39 06 6868162

[www.infn.it/comunicazione/](http://www.infn.it/comunicazione/)

[comunicazione@presid.infn.it](mailto:comunicazione@presid.infn.it)

---

## The INFN

[Italian National Institute for Nuclear Physics](#)

---

The INFN is primarily a research community whose members work to discover the mechanisms and fundamental components of matter. To do so, they invent and develop innovative technologies and make some of the most accurate measurements humanely possible. The INFN is a public research agency under the supervision of the Ministry of Education, Universities and Research (MIUR). It conducts theoretical and experimental research within a framework of international competition, in collaboration with universities. This requires the use of cutting-edge technology and instruments, developed by the INFN at its own laboratories and in collaboration with industries. Today the INFN employs some 5,000 scientists whose work is recognised internationally not only for their contribution to various European laboratories, but also to numerous research centres worldwide.

## Lines of research

The five main lines of research are coordinated by five National Scientific Committees (CSN). Each committee has a chairman and is composed of representatives from the various facilities who are charged with advising the governing body on priorities and recommending funding for well-defined areas of research. They also monitor each step of the experiments and the standard of research produced. An efficient, democratic organisational model capable of keeping pace with the level of scientific output.

Lines of research:

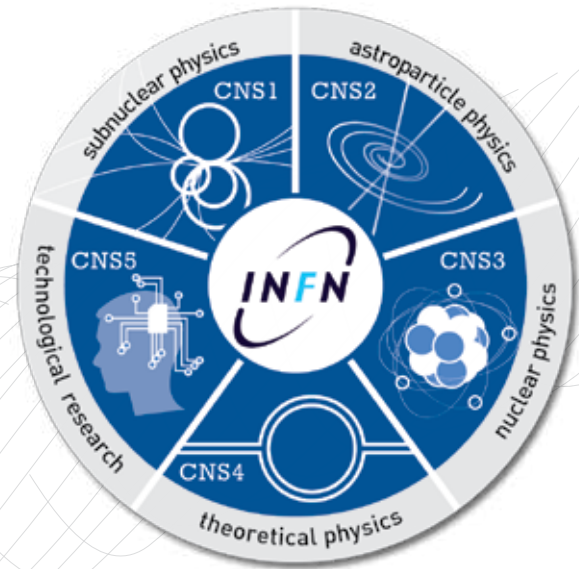
**subnuclear physics (CSN 1)**

**astroparticle physics (CSN 2)**

**nuclear physics (CSN 3)**

**theoretical physics (CSN 4)**

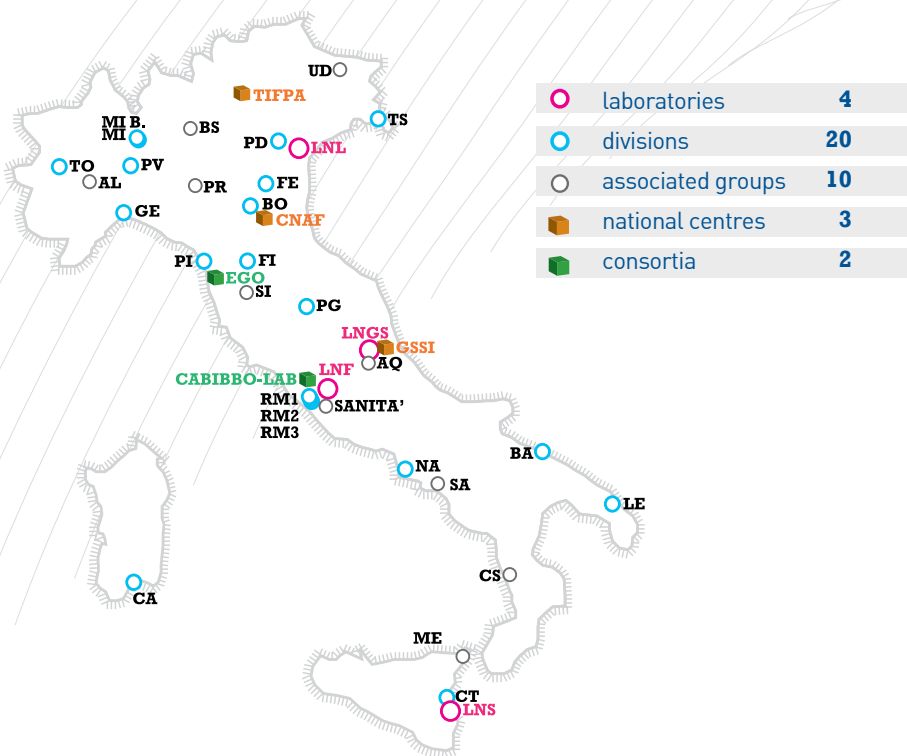
**technological and inter-disciplinary research (CSN 5)**



2 | 3

## Presence and research by the INFN

Italian National Institute for Nuclear Physics



## Facilities in Italy

The INFN carries out research activities at two complementary types of facilities: divisions and national laboratories. The four national laboratories, based in Catania, Frascati (Rome), Legnano (Padua) and Gran Sasso (L'Aquila), house large equipment and infrastructures available for use by the national and international scientific community. Each of the 20 divisions and the 10 groups linked to the divisions or laboratories are based at different university physics departments and guarantee close collaboration between the INFN and the academic world. The following currently also form part of the overall structure:

- The National Centre for Research and Development in Information Technology (CNAF), based in Bologna.
- The Gran Sasso Science Institute (GSSI), in L'Aquila.
- The Trento Institute for Fundamental Physics and Applications (TIFPA), in Povo (Trento)
- Administrative HQ, in Frascati (Rome)
- The Head Office, in Rome.

Building on decades of experience, the INFN has developed an organisational structure that achieves a good balance between centralised and decentralised management.

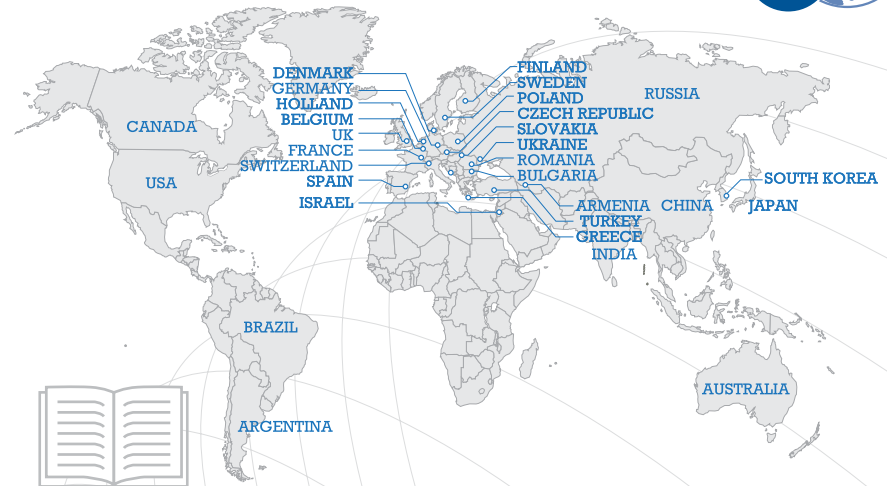


## The INFN in the world

The INFN's strong global presence also reflects the deeply rooted international scope of scientific collaboration in the domain of physics research. Most research activities promoted and conducted by the INFN are undertaken within a network of collaboration, at foreign and international laboratories and at its own facilities in Italy, involving large numbers of scientists from all over the world.

The INFN is an important organisation with a presence in five continents and more than 30 countries, including: Argentina, Armenia, Australia, Belgium, Brazil, Bulgaria, Canada, China, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Holland, Hungary, India, Israel, Japan, Poland, Portugal, Romania, Russia, Slovakia, Spain, Slovenia, South Korea, Sweden, Switzerland, Turkey, UK, Ukraine, and USA.

↓ Countries of foreign institutions that signed agreements with the INFN in 2012



## An internationalised organisation

Italian National Institute for Nuclear Physics

↓ Guest researchers from abroad at the INFN's facilities in 2012



## Foreign researchers at our facilities

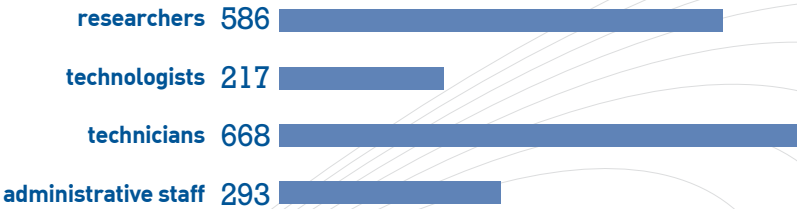
The INFN attracts large numbers of researchers from abroad to work at its facilities. Each year an average of around 1,200 foreign scientists use the INFN's four national laboratories for their research activities (either working at the site or remotely). Five hundred of them, from some forty countries, work directly at the INFN's laboratories and divisions.

They account for over forty percent of all users at the Frascati national laboratory (LNF), more than sixty percent at the Gran Sasso laboratory (LNGS) and about thirty percent of those at Legnaro (LNL) in Padua and the Southern national laboratory (LNS) in Catania.

The workforce and the contribution of associates

The INFN is one of the Italian research organisations with the smallest relative number of administrative staff, who represent just 16 percent of the total workforce. 84 percent of the INFN's employees are directly engaged in research or in activities to support research and work at its facilities or on behalf of the INFN abroad. Generally speaking, in comparison to many other research and training organisations, personnel costs account for a small portion of total expenditure: little more than half. Almost four thousand associates work alongside the INFN's employees. Many are university employees with no salary commitment from the INFN, but who enjoy the same privileges as its employees in terms of access to facilities, research funding, planning and management. About one third of these associates are undergraduate and graduate students and research fellows furthering their studies at the INFN.

↓ Breakdown of employees with open-ended contract in 2012



total employees with open-ended contract in 2012  
**1764**

Human resources

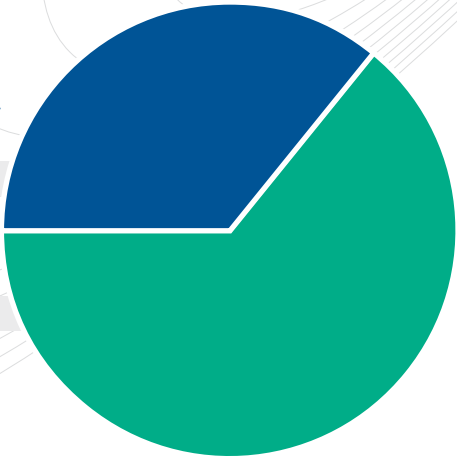
Number of employees and associates in 2012 ↘



open-ended contract 1764  
fixed-term contract 273  
**employees 2037**

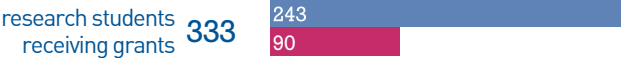


**associates 3674**



women men

↗ Undergraduates, Ph.D. students and research students receiving grants working at the INFN as associates in 2012



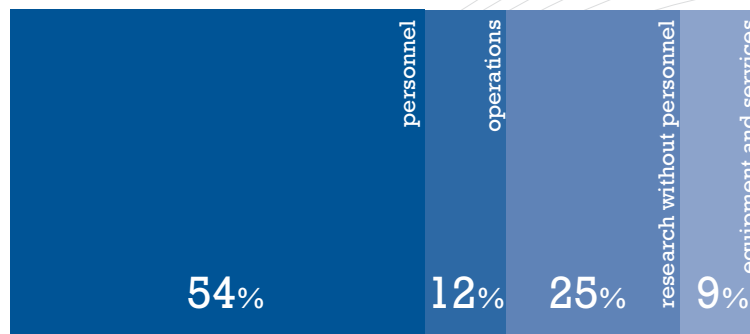
## Projects in Italy

The INFN is involved in numerous scientific collaborations in Italy. These collaborations with other agencies, universities and Italian institutions have the potential to open up new frontiers, often involving inter- or multi-disciplinary activities.

The INFN cooperates with Italian industries and businesses, enabling the Italian productive fabric to benefit from the results of its research. Along with major international projects, the INFN is also engaged in Italian projects under multi-year financing programmes. In general, projects led by the INFN adhere closely to the guidelines of the next European Framework Programme for Research, HORIZON 2020. Research activities are organised under three priorities: Excellent science, Better society and Competitive industries.

Through its facilities, the INFN has put forward proposals and received funding for national, regional and local research programmes.

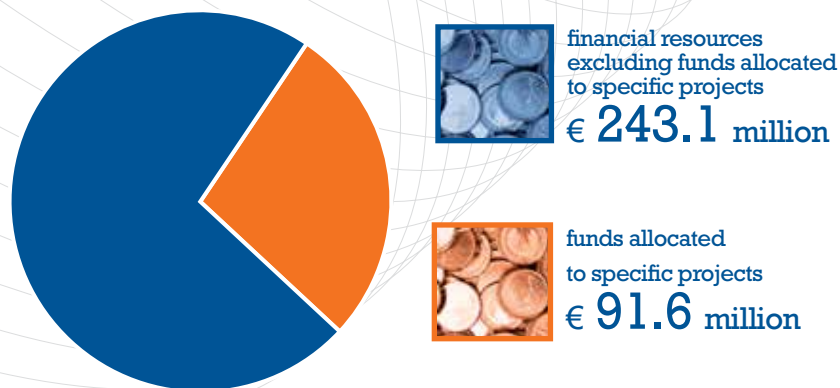
✓ Profile of expenditure for research, personnel, operations and equipment in 2012



## Local and global projects

Italian National Institute for Nuclear Physics

↓ Breakdown of financial resources in 2012



## International projects

The INFN collaborates with international agencies and universities on a number of projects. Some of the major international projects in which the INFN is involved are conducted at CERN, the European particle physics research centre in Geneva. Among the most complex projects in recent years are those with the LHC particle accelerator.

The INFN is also closely involved in experiments at other major laboratories abroad.

The INFN has been actively involved in all areas under the Seventh Framework Programme: Cooperation, Ideas, People and Capacity and in the additional Euratom programme. The nature of the research conducted by the INFN makes it a good candidate for projects relating to research infrastructure and e-infrastructure. Skills acquired in the fields of nuclear physics and accelerator technology can also serve as a stimulus for proposals in many other areas such as health, environment, food, nanoscience, energy and safety.

## Technology transfer

Basic research needs innovative solutions using advanced technology that often exceeds the available industrial know-how. That is why the INFN develops technological research for use in advanced experiments, driven by the need to develop new methods of particle acceleration and detection or data acquisition and analysis.

These experiments represent a unique source of innovative technology in the field of superconductivity, electronics, precision mechanics, high-performance networks, imaging diagnostics, nuclear particle beam therapy, techniques for use in the preservation of artistic heritage, etc. It is therefore only natural that the INFN should transfer the knowledge acquired during its research activities.

Transfer of technology is gradually becoming an established practice within the INFN, also thanks to its new functional organisation. Over the years, the INFN's technological research has had a multiple impact on other companies: from the size of their workforce, to the ability to extend their product ranges and increase their engineering and production capacity.

Some businesses have been set up on the basis of ongoing relations with the INFN. There are hundreds of cases in which the INFN has been a source of stimulus and growth, even of employment, mainly among small and medium-sized enterprises, and has fostered the creation and success of leading companies. Although from a financial perspective the impact on large-scale industry has been marginal, it has developed and activated production lines which have made a significant technological contribution.

## Impact on society and on the economy

Italian National Institute for Nuclear Physics





## Training

The INFN has always paid great attention to all aspects of advanced training in Italy: for young people, teaching staff and its own workforce. The INFN plays an important role in degree, second-level master and doctoral degree programmes in physics.

It also offers work experience schemes and scholarships. In addition, the INFN runs a continuous learning programme for its employees (researchers, technologists, technicians and administrative staff) aimed at enhancing their skills, increasing their knowledge and keeping them up-to-date. Although its main task is to prepare the scientists of tomorrow, the INFN is also committed to training teaching staff and improving the skills of the scientists of today.

## The scientists of tomorrow

↓ Number of scholarships and post-Ph.D. research grants awarded by the INFN in 2012

<b>technology research grants (bachelor degree)</b>	<b>40</b>
<b>Ph.D. grants</b>	<b>144</b>
<b>post-Ph.D. for foreigners</b>	<b>63</b>
<b>INFN research funding for Italians</b>	<b>150</b>
<b>university research funding and INFN</b>	<b>48</b>
<b>grants for technical and administrative staff</b>	<b>12</b>
<b>technology grants (school-leavers)</b>	<b>20</b>

Every year the INFN covers **20** percent  
of all grants for Ph.D. research projects in physics  
available that year at Italian universities.

