



Outreach Activities at INFN

International Training Network - SMARTHEP

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INFN : Istituto Nazionale di Fisica Nucleare

INFN is a renowned Italian research institute dedicated to the study of fundamental particles and forces that govern the universe. Established in 1951, INFN plays a key role in global scientific research.

The INFN's mission is to advance the understanding of the fundamental laws of nature, using cutting-edge technology and fostering international collaborations to push the boundaries of human knowledge. It also aims to train new generations of scientists and promote technological innovation with real-world applications.

INFN collaborates with major international organizations like CERN (European Organization for Nuclear Research), providing significant contributions to global research projects like the Large Hadron Collider (LHC).

<https://home.infn.it/it/>



Research Areas of INFN

Research Fields:

- *Nuclear and subnuclear physics*: Understanding the basic constituents of matter.
- *Astroparticle physics*: Exploring cosmic phenomena such as dark matter, neutrinos, and cosmic rays.
- *Theoretical physics*: Developing models to explain experimental results and predict new phenomena.
- *Accelerator physics and Detector R&D*: Designing and developing new technologies for scientific and medical purposes.



Organization of INFN

National Laboratories:

- Gran Sasso National Laboratory (LNGS) – Underground laboratory, focused on astroparticle physics.
- Frascati National Laboratory (LNF) – Accelerator physics and particle collisions.
- Southern National Laboratory (LNS) – Catania, nuclear physics.
- Legnaro National Laboratory (LNL) – Leading in nuclear structure research and accelerator technology.

Excellence centers: TIFPA, CNAF, GGI, EGO

Regional Divisions: INFN has 20 regional sections located in major Italian universities, facilitating collaboration with academic research and education.

General Organization: Governed by a National Council and managed by several scientific and administrative committees. It supports both domestic and international research projects.



Mission of INFN

Scientific Committees:

Oversee research in fields like high-energy physics, nuclear physics, and theoretical physics, ensuring scientific excellence and collaboration.

Technology Transfer Committee:

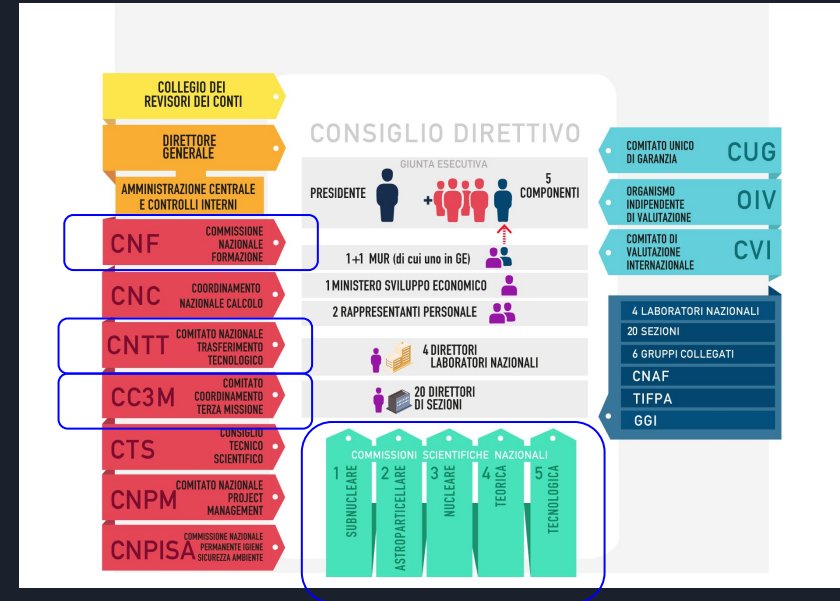
Promotes the application of research to industry, fostering innovation in areas like medical technologies and data science.

Training and Education:

Supports the development of young scientists through training programs, PhD fellowships, and internships in collaboration with universities.

Outreach and Public Engagement:

Engages the public with science through outreach events, lectures, and educational programs to inspire new generations.



CC3M and INFN Outreach Activities

CC3M (Comitato di Coordinamento della Terza Missione):

CC3M is INFN's committee for promoting science communication and public engagement. It aims to bridge the gap between cutting-edge research and society, fostering a deeper public understanding of scientific advancements.

Main Objectives:

- Promote *scientific literacy* and make complex research accessible to the public.
- Engage schools, universities, and the general public with interactive exhibitions, events, and multimedia content.
- Collaborate with other national and international institutions to enhance the impact of outreach activities.



CC3M and INFN Outreach Activities

- **Public Engagement:**
Organizes public lectures, open days at research facilities, and interactive exhibits that highlight INFN's research in particle physics, cosmology, and technology.
- **Educational Programs:**
Provides resources and workshops for schools and teachers, fostering STEM education and nurturing future scientists.
- **Multimedia Communication:**
INFN produces documentaries, videos, and podcasts aimed at making scientific research relatable and engaging for broader audiences.

The CC3M supports multiple projects of national interest and participates in major fairs and festivals.

In 2023, the National Institute for Nuclear Physics (INFN) engaged an audience of approximately 105,000 people.



INFN Outreach Activities

Projects for schools

Art & Science	High School	Art and Science
Asimov		Books and Science
Dark		Dark Matter
Master Class		Multidisciplinary
Radiolab		Radioactivity
OCRA		Cosmic Rays
HOPE		Physics and Technology
Lab2go		Physics Laboratories
INFN Kids		Primary School

Scienza x Tutti	Web Portal	Public
HEPSCAPE	Escape Room	Public

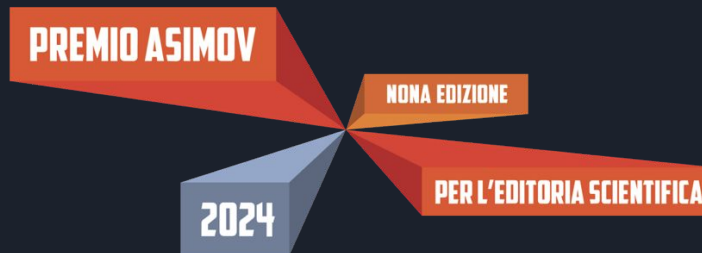
Festivals and Fairs

Festival Genova	Public	Unique Festival Project
Play Modena		
Salone del Libro Torino		
Pint of Science		
Camogli		
Fiera Didacta	for Teachers	

Education and Training

AggiornaMenti	Teachers	Middle School
PID		High school
Inspyre	Students	
Stage		

INFN Outreach Activities @MiB



INFN Outreach Activities

International Masterclasses

Students participating in this project will face the challenge of analyzing scientific experiment data from CERN (CMS, ATLAS, LHCb) in Geneva or other major international laboratories in the first person. During the masterclass days, students are sent to university classrooms to attend seminars and perform practical exercises to analyze real data collected from ongoing experiments at high-energy physics laboratories. At the end of the day, students connect via videoconference with the laboratory that produced the analyzed data and with participants in the masterclasses from around the world to discuss the results of the exercises.



INFN Outreach Activities

OCRA – Outreach Cosmic Rays Activities

Discovering the physics and mysteries of cosmic rays, the particles that arrive on Earth from space, bringing us information about their sources and the journey they take to reach us. The project encompasses public engagement activities in the field of cosmic ray physics carried out by INFN, offering a wide range of online educational content and organizing experimental activities and seminars for schools and the community, as well as courses for teachers on the subject of cosmic ray physics.



INFN Outreach Activities

Pint Of Science

Pint of Science is a unique international festival that brings researchers and the public together in a casual pub setting. Over the course of three evenings, science enthusiasts can engage with experts from various disciplines, including physics, biology, technology, and environmental science.

In the pubs of the 21 Italian participating cities, researchers share their latest findings and insights, presenting complex scientific concepts in an accessible and engaging manner. Attendees are encouraged to ask questions and discuss their thoughts, fostering a lively dialogue that demystifies science and promotes a greater understanding of ongoing research.

<https://pintofscience.it/>



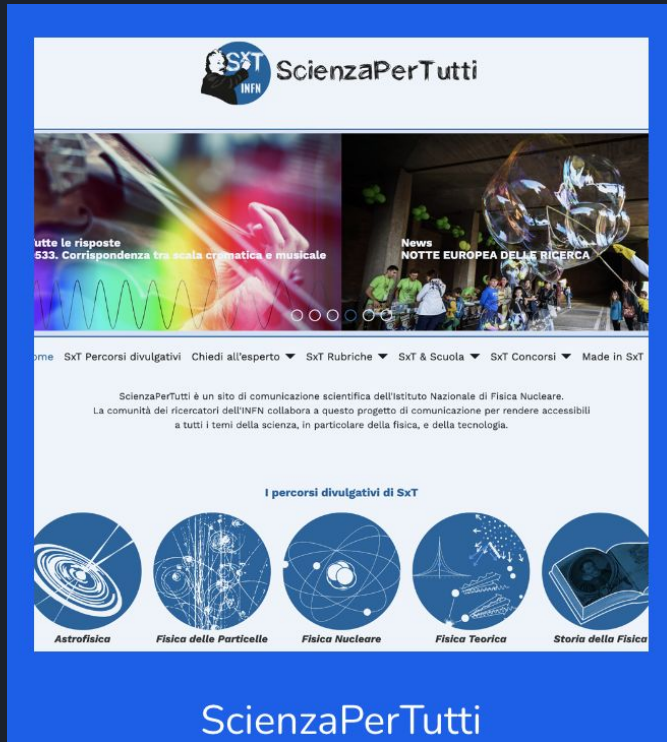
INFN Outreach Activities

Art&Science Across Italy

Telling science through art. This is the challenge for students participating in the two-years European project in collaboration between INFN and CERN. *Art&Science Across Italy* aims to bring high school students closer to scientific research using the language of art. Participants create artworks inspired by scientific topics discussed during the project, which are then displayed in local exhibitions at various locations. The most significant works are awarded and featured in a national exhibition. Students who create the winning pieces in the national competition receive a scholarship for an art and science internship at CERN or one of INFN's laboratories.



INFN Outreach Activities: other projects



SxT INFN ScienzaPerTutti

...utte le risposte
533. Corrispondenza tra scala cromatica e musicale

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ScienzaPerTutti è un sito di comunicazione scientifica dell'Istituto Nazionale di Fisica Nucleare. La comunità dei ricercatori dell'INFN collabora a questo progetto di comunicazione per rendere accessibili a tutti i temi della scienza, in particolare della fisica, e della tecnologia.

I percorsi divulgativi di SxT

- Astrofisica
- Fisica delle Particelle
- Fisica Nucleare
- Fisica Teorica
- Storia della Fisica

ScienzaPerTutti



GIOCCHI E FUMETTI

...MIONE ASA ERABALI

...RICHARDO

...ELETTRONICA

INFN Kids

INFN Outreach Activities: other projects



INSPYRE



Lab2Go

INFN Outreach Activities: other projects



Dark



RadioLab e ISOradioLAB

INFN Outreach Activities: fairs



Festival della Scienza di Genova



Salone Internazionale del Libro



HEPscapel



PLAY. Festival del Gioco



DIDACTA Italia

INFN Outreach Activities

Importance of Outreach for INFN:

- **Promotes Scientific Literacy:**
Increases public knowledge about complex scientific topics, making them accessible and relatable.
- **Inspires Future Generations:**
Engages students and young scientists through hands-on experiences and educational programs, nurturing the next generation of researchers.
- **Fosters Community Collaboration:**
Strengthens ties between researchers and the community, encouraging dialogue and collaboration across disciplines.

Ongoing INFN Commitment:

INFN remains dedicated to expanding its outreach efforts, ensuring that scientific discoveries resonate with society and inspire curiosity in future scientific endeavors.