



Istituto Nazionale di Fisica Nucleare  
Laboratori Nazionali di Frascati

# LN OUTREACH PROGRAMS

---

SIDS - INFORMATION AND DISSEMINATION SERVICE

Rossana Centioni INFN-LNF

LN Scientific Committee, Nov 13, 2017

- ▶ LNF Outreach mission
- ▶ Organization and activities
- ▶ Highlights on some exclusive LNF events
- ▶ Ongoing and future projects

Since ever the LNF have been active in  
Physics Education

the activity has been always managed by a dedicated Service

## **SIDS** **Scientific Information and Dissemination Service**

realized thanks to a team of volunteers staff and associates  
graduate students, postdocs, researchers, engineers and technicians



In line with the INFN mission, LNF goal for the **3rd Mission** is

- ▶ to share with society programs and results of the scientific research
- ▶ to transfer scientific knowledge, methodology and technologies to students and teachers

Frascati plays a **leadership role** in the INFN dissemination bridging Science and Society

Thanks to its facilities and to the good relations with the territory constructed over these last 20 year

**All the LNF experimental groups, Divisions and Services are involved in this mission**

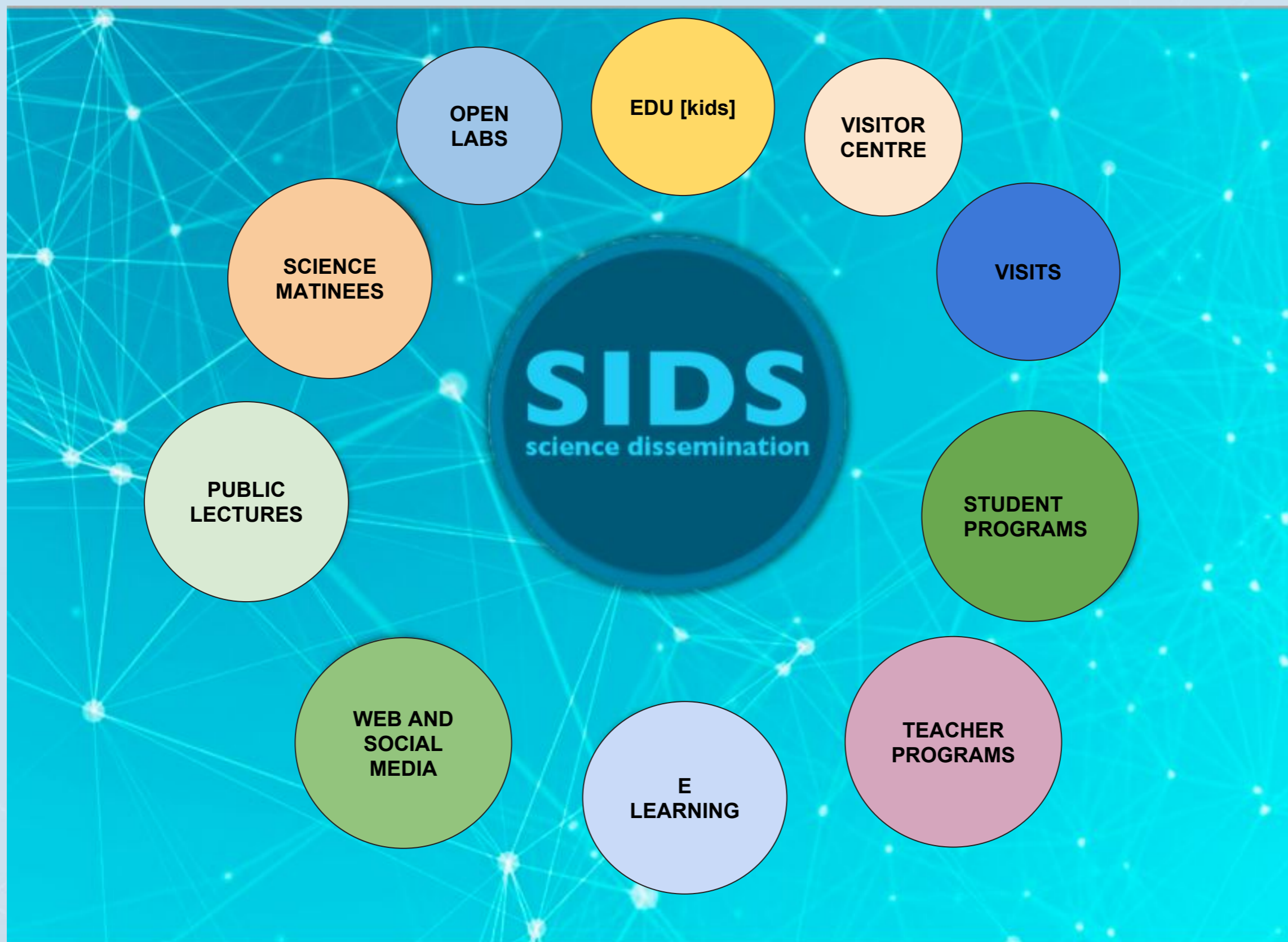
## LNf cooperate with

- National Commission for the 3rd Mission
- MIUR and the other Research Centres (ENEA, INAF, ESA, CNR, ASI, INGV, Rome Universities, G. Marconi University)
- 90 Schools from all over Italy and abroad
- Ferrara INFN Section and University - A special collaboration in Physics Education Research

## Frascati member of International organizations

- IPPOG International Particle Physics Outreach Group
- Interactions.org
- GIREP - International Research Group on Physics Teaching

# A wide range of initiatives for all the ages





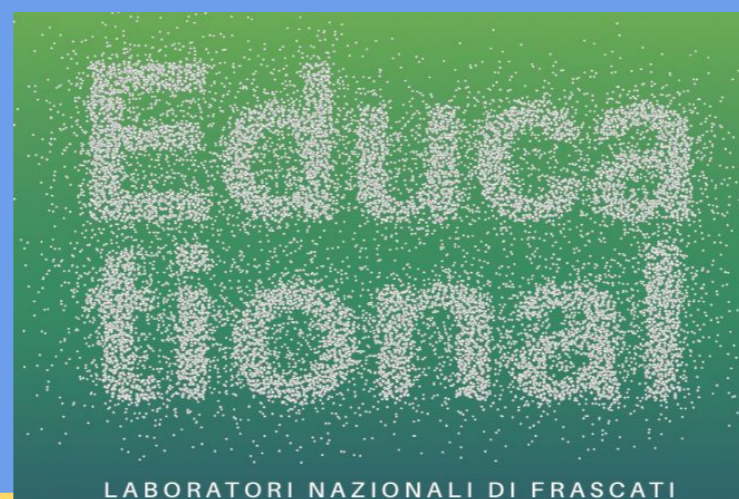
# In 2018 - 15 outreach projects

Target: Students - Teachers - General Public

**Inside** the LNF (Visits, OpenLabs, Public Lectures, Courses and Stages for high school teachers and students)

**Outside** the LNF (Researchers@schools, local libraries, Institutional Events)

**About 8000 contacts each year**



International School on modern PhYsics and REsearch





4 sectors - very closely related

**1**  
**COMMUNICATIONS**

**2**  
**GRAPHICS & PHOTOS**

**3** **MULTIMEDIA**  
**&**  
**EVENTS**

**4**  
**EDUCATIONAL**

## Care of Public Relations and Institutional contacts

- ▶ **WEB PORTAL** for general public (Eng/Ita)
- ▶ **Social Network Accounts**

## WEB EDITORIAL BOARD

Inform the public about LNF research activities and its organization  
Give increased visibility to the ongoing experimental activities  
Promote LNF dissemination programs

Editing of News and a Newsletter

Fisica News (comments on papers appeared in scientific literature)

Translation of articles from Symmetry Magazine

Restyling of all the **USERS WEBSITES** (in progress)

- ▶ Manages the **Image Database** (collection of digitized images of all LNF events)
- ▶ A special project is in progress for the **Historical Collection (over 1000 pictures)**
- ▶ Realizes posters and photos for conferences and meetings, Infographics and brochures



- ▶ Manages LNF multi-media **equipments**
- ▶ Produces **video documentation** (experimental activities and interviews to scientists and visitors)
- ▶ Records Physics Lessons and Public Lectures  
Over **300** Videos published on Accendiscienza and Youtube
- ▶ Provides a Web **Streaming** Service

Sets up **Big Events** (OpenLabs) and **Expositions**

Primary school **800** kids

High School Students **420** students  
National and International

High School Teachers **250** teachers

General Public **3500** visitors

- Educational programs represent a very special **opportunity to experience** the world of a Research Centre
- **Learn about Modern Physics**
- A program of video lessons guarantees a **remote participation** in **E-learning**

# High School Students

- Visits
- Researchers @ School
- 7 Science Matinéeés
- INSPYRE School in english
- Int. Masterclass IPPOG

- **Summer School**

Many opportunities to experience in the following areas:

1. Science and Technology
2. Communications
3. Administration and Service



## **Work-related learning** (*Alternanza scuola lavoro*)

In agreement with MIUR - mandatory since 2015

LNf projects:

- Student in Staff - support to LNf activities
- Student as a researcher

In 2017 signed **70** Agreements with Italian Schools



# Student as a researcher



**RESEARCH**



**WORK IN GROUPS**



**EXPERIENCE**



**SOCIALIZE**



# Student as a researcher

## DATA COLLECTION



## Reporting and Awards



## DATA ANALYSIS



## HANDS-ON Activity

## VISITS the LABS



# High School Teachers



- Seminars
- Courses in Modern and Contemporary Physics
- Team work for special projects

Interaction between teachers and **researchers** in order to **explore** the contemporary research in Physics and **improve** physics teaching

# General Public

## OpenLabs

involving 2500 people

With the contribution of all LNF personnel

## Afternoon Public Lectures

involving 1500 people

once a month

## Long Life E-Learning



LNF opens to the general public (kids, schools and curious people) for conferences, expositions, guided tours, exhibitions

## 4 Projects exclusively realized by LNF

edu [kids]

Primary school

INSPYRE

Students

INCONTRI DI FISICA

Teachers

ACCENDISCIENZA

E-Learning



# edu [kids]

8 - 14 years old



- Dedicated visits
- Seminars at school
- Hands on activities during OpenLabs

# INSPYRE

International School on modern Physics and Research

## International **School** on Modern Physics and Research

The School is open to about **80 students** in their last two years of high school coming from many countries.

INSPYRE involves **lectures** on Modern Physics and its applications in Society and **laboratory activities**. The participants have the opportunity to visit the main experiments and accelerating facilities at LNF.

**English** is the official language of the school.

**Different nationalities:** Italy, France, Germany, UK, Norway, Belgium, Romania, Bosnia, Spain, Australia





## Courses on Modern Physics for **High School Teacher**

Since 2000 - XVII edition  
200 high school teachers from all Italy  
In presence at LNF : 3 days - 25 hours  
Lectures and 15 Working groups

Programs online and in presence in collaboration  
with G. Marconi University (6 CFU)



**Lessons** in presence at LNF  
on Relativity, Quantum Mechanics and Cosmology

2018 program on **experimental activities** to be  
reproduced at school





# AccendiScienza



Progetto MIUR Legge 6/2000 PANN15T3\_00218



- Video lessons
- A useful tool for didactic purposes and an opportunity to learn Modern Physics along the life

<https://accendiscienza.it>

In 2016 we got funds from the MIUR for the realization of an **E-learning project** addressed to



**Docenti**

Aggiornamento e formazione per docenti di scuole secondarie di secondo



**Studenti**

Supporto allo studio e stimolo all'apprendimento.



**Vasto Pubblico**

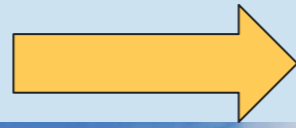
Soddisfare le proprie curiosità e realizzare il continuum educativo.



**Bambini**

Imparare divertendosi, una piattaforma dedicata ai più piccoli.

VISITOR CENTRE



SCIENCE CENTRE



Istituto Nazionale di Fisica Nucleare  
Laboratori Nazionali di Frascati



LAST BORN PROJECT

An old building has been recently qualified to host a **Visitor Centre**

A team is studying a [visit path](#) illustrating the history of accelerators and detectors from their beginning to the future.

Thanks to an agreement with the Architecture Faculty of Sassari University, next year will also start the project for a **Science Centre**, a [multi user building](#) for Research and Dissemination. An entire area will be qualified including the Visitor Centre.

The project is supported by the **International Evaluation Committee (CVI)**

Summary:

**Visitor Centre:** Opening at the OpenLabs (May, 19 2018)

**Science Centre:** Project study in progress. Foreseen in 5 years

**Web Users Site** - Restyling Users pages. Foreseen in unless 2 years

**Educational workshops** - Improvement of the scientific **equipments** (rooms and instrumentation)

**Research in Physics Education** (with Ferrara University and INFN).  
Team working with teachers and reserchers to study the pedagogical and didactic aspects and develop methodologies, and innovative tools for Modern Physics teaching



## SIDS PERSONNEL

5 Staff

2 Temporary

4 Fellows

**LNf Tutors:** about 60 volunteers

Researchers, Technologists, Technicians, Administratives

## BUDGET

100 kE/year

(Organization of Events and materials + special initiatives)

## STAFF

### SCIENTIFIC INFORMATION AND DISSEMINATION SERVICE

**Resp:** Rossana Centioni

**Scientific Referent:** Pasquale Di Nezza

#### COMMUNICATIONS



**Rossana Centioni (Resp)**  
[rossana.centioni@Inf.infn.it](mailto:rossana.centioni@Inf.infn.it)  
+39 06/9403 2423



**Sara Reda**  
[sara.reda@Inf.infn.it](mailto:sara.reda@Inf.infn.it)  
+39 06/9403 2759



**Camilla Paola Maglione**  
[camilla.paola.maglione@Inf.infn.it](mailto:camilla.paola.maglione@Inf.infn.it)  
+39 06/9403 2759



**Emilio Alfieri**  
[emilio.alfieri@Inf.infn.it](mailto:emilio.alfieri@Inf.infn.it)  
+39 06/9403 2753

#### SCIENTIFIC EDUCATION AND DISSEMINATION



**Debora Bifaretti (Resp)**  
[debora.bifaretti@Inf.infn.it](mailto:debora.bifaretti@Inf.infn.it)  
+39 06/9403 2872



**Sara Arnone**  
[sara.arnone@Inf.infn.it](mailto:sara.arnone@Inf.infn.it)  
+39 06/9403 2871



**Susanna Bertelli**  
[susanna.bertelli@fe.infn.it](mailto:susanna.bertelli@fe.infn.it)  
+39 06/9403 2750

#### GRAPHICS – PHOTO



**Claudio Federici (Resp)**  
[claudio.federici@Inf.infn.it](mailto:claudio.federici@Inf.infn.it)  
+39 06/9403 2723



**Agostino Mecozzi**  
[agostino.mecozzi@Inf.infn.it](mailto:agostino.mecozzi@Inf.infn.it)  
+39 06/9403 2923

#### MULTIMEDIA & EVENTS



**Gianni Di Giovanni (Resp)**  
[gianni.digiovanni@Inf.infn.it](mailto:gianni.digiovanni@Inf.infn.it)  
+39 06/9403 2724



**Elisa Santinelli**  
[elisa.santinelli@Inf.infn.it](mailto:elisa.santinelli@Inf.infn.it)  
+39 06/9403 2868



**Elena Patrignanelli**  
[elena.patrignanelli@Inf.infn.it](mailto:elena.patrignanelli@Inf.infn.it)  
+39 06/9403 2750

THANK YOU FOR  
YOUR ATTENTION