

MISSIONE 4
ISTRUZIONE
RICERCA

LNGS-FUTURE: LNGS FACILITIES UPGRADE TO UNVEIL RARE EVENTS



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PIANO NAZIONALE
DI RIPRESA E RESILIENZA

Panel di riferimento: *PSE*

Titolo della Proposta: **LNGS-FUTURE: LNGS Facilities Upgrade To Unveil Rare Events**

Codice della proposta: **IR0000024**

Tipologia: **(i) - Empowering**

Proponente: *INFN*

Infrastruttura di Ricerca: **LNGS - Laboratori Nazionali del Gran Sasso dedicati alla fisica delle particelle di origine cosmica**

Importo totale: **20.058.826,53€**

Di cui al Sud: **20.058.826,53€ (100,00%)**

Abstract:

The Laboratori Nazionali del Gran Sasso (LNGS) of INFN are universally recognized as the most important research center for astro-particle physics. Since the end of the 1980s, when the experimental activities began, the role, results and international impact of LNGS have been constantly growing. Every year over a thousand scientists, from the most renowned universities and research institutions in the world, come to LNGS to participate in experiments devoted to the study of the great mysteries of the universe.

The study of the properties of neutrinos, the search for dark matter and the understanding of the mechanisms underlying the functioning of stars are the main strands of the articulated LNGS research program.

Thanks to their size, ease of access and geographical location, LNGS are the ideal place to carry out complex experiments. Moreover, the success of LNGS is closely linked to the ability to provide integrated services and scientific support of excellence in the fields of mechanics, electronics, the selection of radio-pure materials, analytical chemistry and scientific computing. The growing relevance of astro-particle physics, repeatedly emphasized by authoritative international organizations, is attested by increasingly fierce competition: many nations are today investing considerable resources in the construction of new infrastructures or in the requalification of existing underground laboratories.

To maintain their pre-eminent role, constant improvement is required to keep LNGS in step with international competition.

The LNGS FUTURE project aims at the modernization and strengthening of the laboratory's technical and safety services and at the creation of support for advanced cryogenics, a technique increasingly used by new generation experiments.

The ultimate goal is to host the most important experiments designed to study the Majorana nature of the neutrino, thus maintaining the world leadership in astro-particle physics for the next decade.

Elenco partecipanti alla Proposta:

- Gran Sasso Science Institute
- Istituto nazionale di fisica nucleare