

Titolo Tema/Progetto	Python-based Analysis of the LEGEND-200 Experiment for Neutrinoless Double Beta Decay Search
Esperimento CSN2/Sigla del Proponente	LEGEND
Struttura INFN del proponente	Roma Tre
Laboratorio ospitante (Italia: LNGS, LNF, LNS,LNL, EGO, SOS-ENATTOS, TIFPA-FBK; Estero: CERN, La Palma, Malargue (AUGER), Salta (QUBIC))	LNGS
Persona di riferimento presso il laboratorio	Valerio D'Andrea
Data di inizio (01/11/2024-01/04/2025, durata >= 3 mesi)	4-Nov-24
Data di fine (>= 3 mesi)	1-Apr-25
Descrizione attività (max 1000 caratteri)	The project consists in the analysis of recent data from LEGEND-200, an experiment searching for neutrinoless double beta ($0\nu\beta\beta$) decay. The core of the experiment is an array of High Purity Germanium (HPGe) detectors deployed directly in liquid argon (LAr) and enriched in the double beta isotope 76Ge up to 92%. The main activity of the project concerns the implementation of custom Python softwares to analyze data acquired with HPGe detectors. The goal is the improvement of the energy resolution of the germanium detectors by adopting non-standard digital signal processing techniques and the determination of the energy scale calibration with a staged approach.
Altre indicazioni (al massimo 500 caratteri)	The work will result in a more precise energy estimation, thus in an increased sensitivity on the $0\nu\beta\beta$ decay search. Thanks to the proposed activities, the student will acquire relevant skills related to data handling and high level analysis of cutting edge astroparticle physics experiments based on solid state detectors, as well as a basic knowledge of the realization of experimental setups with active veto techniques.
Servizi offerti dal laboratorio ospitante	Mensa
Note	0