Progetto	XENONnT Neutron Veto Slow Control
Esperimento / sigla proponente	XENON
Laboratorio ospitante	LNGS
Contact person presso il laboratorio	M. Iacovacci
Periodo previsto:	2022-23
Sezioni e tutor proponenti :	Napoli – M. Iacovacci / F. Marignetti
Descrizione attività (max 1000 caratteri)	The XENONnT detector, operating at the INFN Laboratori Nazionali del Gran Sasso (LNGS), has been provided with a neutron Veto (nVeto) sub-detector to tag neutrons able to mimic the WIMP signals, so reducing a major source of background. The nVeto is built on an octagonal structure (3 m-high and 4 m-wide) inside the water tank surrounding the cryostat. In order to improve the neutron detection efficiency, the water will be loaded with Gadolinium salt. A total of 120 Hamamatsu 8” high-QE PMTs with low-radioactivity are placed along the lateral walls of the octagonal steel structure in order to detect the Cherenkov photons produced in the neutron capture by the Gadolinium. To correctly operate the nVeto, it is mandatory a continuous monitoring of the water quality, with a purification system able to keep good transparency of Gd-loaded water and stability of the Gd concentration. A Slow Control system is in charge of monitoring all the involved parameters and modify the status of the plant according to the various use cases. The activity foreseen for the student will envisage: 1) contributing to the commissioning of the water recirculation system; 2) development of a web interface to remotely control the performance of the system.
Altre indicazioni: (max 500 caratteri)	
Facility che il laboratorio ospitante mette a disposizione	Mensa
Note:	