

Progetto per borse CSN3 per gli studenti della laurea magistrale	
Titolo del progetto:	$11\text{B}+p$ interaction for nuclear astrophysics
Esperimento/Sigla proponente:	ASFIN2
Laboratorio ospitante:	LNS
Contact person presso il laboratorio	G.L. Guardo
Periodo previsto:	marzo-settembre 2025
Sezioni e tutor proponenti:	LNS L. Lamia PD Mazzocco PG Palmerini NA La Commara
Descrizione attività (max 1000 caratteri):	<p>Light elements in astrophysics represent one of the most interesting and intriguing topic. Their importance is indeed related to different scenario affecting the nucleosynthesis in the Cosmos, ranging from primordial nucleosynthesis to the stellar one. With respect to this last aspect, the trio of light elements lithium, beryllium and boron (LiBeB) is used for understanding stellar mixing phenomena acting inside stellar interiors. Besides the role in nuclear astrophysics, the $11\text{B}(p,\alpha)\alpha$ reaction has gained prominence primarily due to its relevance in nuclear fusion reactor development, where it seems highly appealing to researchers, because of the lack of neutrons in the reactions products. For such a reason, devoted cross section measurements have been performed during these years. In order to complement the already available information and to measure angular distribution at energy range where no or discordant measurements exist, we aim at investigating the $11\text{B}(p,\alpha)8\text{Be}$ reaction with the ELISSA detection setup at the 3MV accelerator.</p> <p>The research activity aims to analyze the experimental data (in ROOT format) starting from the calibration of the detectors involved and performing devoted simulation using GEANT4 in order to cross check the results.</p>
Altre indicazioni (max 500 caratteri):	Basic knowledge of C++, GEANT4 and ROOT
Facility che il laboratorio ospitante mette a disposizione:	Buoni pasto Postazione di lavoro Computer e programmi per analisi dati e simulazioni
Note:	L'esperienza svolta presso il laboratorio ospitante può essere parte integrante della attività richiesta per un progetto di tesi magistrale.