Internship in experimental nuclear physics

Shedding new light on the structure of ^{56}Ni using (n,3n) reaction at NFS

In this M2 internship, we propose a preparatory work of the PhD project https://www.ganil-spiral2.eu/wp-content/uploads/2022/09/EXO3NFS-thesis2023.pdf which aim at performing a prompt gamma spectroscopy of ^{56}Ni using the EXOGAM array at NFS using the (n,3n) reaction. The experiment (E838_21) was approved at the December 2021 GANIL PAC and should be schedule at the facility in autumn 2023.
This experiment is a pioneering work in the study of the nuclear structure studies using large gamma-array and fast neutron and is only possible at GANIL-Spiral2 today. Another aspect that will be developed in this thesis is the FAIR approach for the data (https://www.panosc.eu/data/fair-principles/). The nuclear community is going toward the OPEN Science framework and this approach requires the fundamental change of how the big data are recorded and analysed.
The M2 project aims at 2 objectives:
- Joining a data taking at the GANIL facility using several EXOGAM module and participating to the near-line analysis to acquire some expertise in gamma-ray spectroscopy;
- Preparing the FAIR framework for the NFS data taking and acquire knowledge in the domain.

Expected skills
C++ programming, nuclear physics master diploma, working in collaboration, instrumental skills

This work can be pursued by a PhD-thesis

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