

INTERNSHIP PROPOSAL

(One page maximum)

Laboratory name: Michigan State University; Facility for Rare Isotope Beams (FRIB);

International Research Laboratory NPA.

CNRS identification code: IRL2024

Internship director's surname: Paul Gueye and Aldric Revel

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Phone number:

Web page: <https://npa.in2p3.fr/summer-training-program/>

Internship location: East Lansing, Michigan, USA

Thesis possibility after internship: NO

Funding: YES/NO, possible If YES, which type of funding:

gratification de stage CNRS (environ 700euros/mois)

Title: Study of phenomena arising along the neutron dripline

Summary (half a page maximum)

The MoNA collaboration (<https://www.monacollaboration.org/>) is one of the world leaders in the study of nuclei at and beyond the neutron dripline. After 20 years of operation at NSCL, the MoNA collaboration performed its first experiments within the FRIB era in the Summer 2025. In particular, the Collaboration is interested in the evolution of the nuclear structure while moving away from stability as well as in the underlying mechanism describing the formation of neutron halo in some weakly bound nuclei. Two more experiments using the MoNA-Sweeper setup and its Si-Be segmented target are scheduled in the Spring 2026. The proposed internship is two-fold: (i) a primary project to perform preliminary investigations of an LH2 target/tracker design and compare (un)polarized beams impinging on such target for the MoNA Collaboration, and (ii) a secondary project to assist in some of the offline analysis/post-tests for the experiments mentioned above.

The registration for the internship must be done on the website: <https://npa.in2p3.fr/summer-training-program/>

Please, indicate which speciality(ies) seem(s) to be more adapted to the subject:

Condensed Matter Physics: NO Soft Matter and Biological Physics: NO

Quantum Physics: YES Theoretical Physics: NO