



MASTER SUMMER TRAINING PROPOSAL

Academic Year 2025/2026

TITLE: Study of phenomena arising along the neutron dripline.

ADVISOR: Paul Gueye and Aldric Revel

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UNIVERSITY/RESEARCH CENTER of the TRAINING:

Michigan State University; Facility for Rare Isotope Beams (FRIB);
International Research Laboratory NPA.

LEVEL

Expected level of student: Master.

DURATION

Max. 4 months, including max 3 months at FRIB.

TOPIC

Experimental analysis/simulation.

ABSTRACT

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.

Please note that this summer training does not imply a continuation for a PhD.

More information is available on the website <https://npa.in2p3.fr/summer-training-program/>