

# PLATAN 2024 - Merger of the Poznan Meeting on Lasers and Trapping Devices in Atomic Nuclei Research and the International Conference on Laser Probing



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## The current status of S3LEB at GANIL

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S3LEB (Super Separator Spectrometer-Low Energy Branch) is a low energy radioactive ion beam facility, which will be employed for the study of exotic nuclei, under commissioning as a part of GANIL-SPIRAL2 facility [1]. High intensity primary beams, delivered by the superconducting LINAC of the SPIRAL2 facility, will allow for increased production rate for nuclear fusion evaporation reaction, thus will facilitate exploration of some critical areas of the nuclide chart with low production cross section and shorter lifetime. The produced ions will be separated by the recoil separator S3 and will be sent to the S3LEB facility at the focal plane of S3 [2].

S3LEB is a gas cell setup followed by radiofrequency quadrupole units, which allows selective ionization of radioactive ions of interest as well as efficient transmission of the ions to an MR-TOF (Multi-Reflection Time of Flight separator) for further beam purification and detection. The ions thermalized and neutralized inside the buffer gas cell are selectively laser ionized either inside the gas cell or in a hypersonic gas jet environment created after the gas cell using a De-Laval nozzle. The S3LEB set up has been commissioned off-line [3,4] and is now being installed at the focal plane of S3, in preparation for on-line commissioning.

Here we present the status of the set up as well as the recent off-line measurements, including in-gas-cell and in-gas jet laser spectroscopy of erbium isotopes in combination with trapping, selection and mass measurement with the multi-reflection time-of-flight mass spectrometer PILGRIM.

Finally, the road map to online commissioning will be presented.

[1] A.K.Orduz, 31st Linear Accelerator Conference, Aug 2022, Liverpool, UK

[2] F. Déchery et al., Eur. Phys. J. A 51, 66 (2015)

[3] J. Romans, et al., Nucl. Instrum. Meth. B 536, 72 (2023)

[4] A. Ajayakumar, et al., NIM B 539, 102 (2023)

**Author:** Dr LECESNE, Nathalie (GANIL)

**Presenter:** Dr LECESNE, Nathalie (GANIL)

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