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## The commissioning of the MORA experiment

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Searching for CP-violation in nuclear beta decay: Commissioning of the MORA apparatus at IGISOL The “Matter’s Origin from RadioActivity” (MORA) project focuses on ion manipulation in traps and laser orientation methods for the searches for New Physics (NP) in nuclear beta decays, looking for possible hints to explain the matter-antimatter asymmetry observed in the Universe. Located in Finland within the JYFL Accelerator Laboratory, the IGISOL facility delivers the right ion beam for the initial phase of the MORA experiment: The  $Mg^{23+}$  it provides is an ideal candidate to extract the so-called D correlation parameter which is sensitive to Time reversal violation and, according to the CPT theorem, to CP violation. The D parameter could be sensitive to the existence of lepto-quarks which are hypothetical gauge bosons occurring in the theories of the baryogenesis. By using an innovative in-trap laser polarization technique, we will be able to reach a sensitivity below  $10^{-4}$  on D. This sensitivity should allow us to probe not only NP but also the Final State Interaction process. The first tests with  $Mg^{23+}$  have been conducted in the IGISOL facility, after offline commissioning carried out using a  $Na^{23+}$  spark source. An efficient trapping process has been achieved up to 11s. Despite a large contamination of the radioactive beam with the stable  $Na^{23}$ , around 30h of data have been registered using a trapping cycle of 3s and alternating 1h run with cloud laser polarizations ( $\sigma^+$ ,  $\sigma^-$ ) and without. The analysis is currently on-going. In this poster, the different steps of the offline and online commissioning will be presented.

**Orateur:** DELAHAYE, Pierre (GANIL)**Classification de Session:** Experiments