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The Evolution of ALISES III

Since 1995, the Laboratory for Accelerator Studies and Development at CEA Saclay specializes in producing ECR intense light Ion Sources, for high intensity proton or deuteron. The initial source SILHI designed for IPHI accelerator was the root of the sources provided to laboratories around the world, such as IFMIF, FAIR or SPIRAL2. In parallel, the Ion Source team started a new R&D program on high intensity ECR compact ion sources with the ALISES source family.

The years spent on testing and improving ALISES I & II lead us to design a new source, named ALISES 3. The development of this source gathers the advantages of each improvement tested on ALISES I & II, to achieve an even smaller and pragmatic configuration.

The manufacturing of ALISES 3 took place during the improvement of the BETSI test bench, from 50kV to 100kV. The goal of this source is to obtain the same characteristics as the original SILHI, with fewer parts and easier maintenance.

This paper describes the evolution of ALISES 3 and the beam characteristics at each step. BETSI test bench is equipped with an Allison Scanner and Faraday cup to analyze the emittance and the beam current.

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