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Modification of the flexible plasma trap for high-intensity metal ion beams production

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NQSTI (National Quantum Science and Technology Institute) is the enlarged partnership on QST established under the National Recovery and Resilience Plan (NRRP) funded by the European Union –NextGenerationEU. In this framework, there is a growing interest in the availability of mA beams of singly charged (1+) metallic ions to realise quantum devices. To satisfy this request, the joint INFN Laboratories LNS and LNL proposed to modify the Flexible Plasma Trap (FPT), installed at LNS, thus transforming it into a simple mirror Electron Cyclotron Resonance Ion Source (ECRIS). This contribution describes the various technical solutions that will be adopted, foreseeing novel radial RF and gas/metal injection systems, focusing particularly on the design and simulations of a flexible extraction system capable of handling different beam intensities and ion species. Specifically, the project targets the production of high-intensity beams of singly charged ions such as Fe^+, and Ba^+, highlighting the versatility and innovation of the proposed modifications.

Footnotes

Funding Agency

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