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European Effort to Improve Highly Charged Heavy Ion Beam Capabilities with ECR Ion Sources

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The European Electron Cyclotron Resonance (ECR) ion source community has more than 20 years of experience working together in various EU-funded projects. In the recent project, called ERIBS (European Research Infrastructure –Beam Services), we will focus on improving ion beam services for the EURO-LABS (European-Laboratories for Accelerator Based Sciences) research infrastructures. The EURO-LABS is a four-year project funded by the Horizon Europe program of the European commission for years 2022 - 2026. In ERIBS collaboration the best expertise, know-how and practices of our community will be exploited and transferred between the partners to take full advantage of the European ion source infrastructure. The aim is to extend the beam variety available for the European user community by developing beam production methods and techniques. This development includes further improvement of technologies related to high temperature ovens, axial sputtering and MIVOC method for all the participating laboratories. We will also aim to improve both short- and long-term plasma and beam stability, as well as methods for online monitoring of these conditions. This can be realized by optical emission spectroscopy, identifying kinetic plasma instabilities by means of hard x-ray detection and using online beam current monitoring systems. An example of the recent developments is the new service provided by the CNRS-IPHC team to synthesize enriched MIVOC compounds for the other ERIBS partners. For example, the team successfully prepared an enriched Chromocene compound, which was needed to produce ^{54}Cr and ^{50}Cr beams for the JYFL and GANIL nuclear physics programs, respectively. During the project the efforts will also continue to further advance the European ion beam database for beam preparation practices.

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Yes

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