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## **Recent Developments and Results of the LPSC PHOENIX Type ECR Charge Breeder**

*Friday 24 September 2021 06:10 (20 minutes)*

Four models of the PHOENIX ECR charge breeders were manufactured for ISOL application. Two are currently under operation at TRIUMF (ISAC) and GANIL (SPIRAL 1) while the SPES one is being installed on the facility. The last model is set on the LPSC 1+n+ test bench where a R&D program is ongoing to improve its performances. The last modifications consisted in improving the beam line vacuum and the devices alignment. Qualification experiments showed an improvement of the charge breeder performances for all the tested species. In parallel, the charge breeder plasma was studied injecting short pulses of 1+ ions and using a zero-dimension model to estimate some plasma parameters. Comparative measurements done in pulse mode before and after the upgrade allowed a better understanding of the performance improvement. The last R&D program step of the LPSC Charge Breeder together with the experimental results will be presented.

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