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Radioisotope separation at MEDICIS

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The CERN MEDICIS facility (MEDical Isotopes Collected from ISolde) consists in a replica of the CERN ISOLDE front end followed by the original Leuven ISOL dipole magnet [1]. Target-ion-source units made at ISOLDE are irradiated parasitically behind the standard ISOLDE target and then brought out of the irradiation area with a monorail system until it can be placed on the front end. Radioisotopes are then ionised, separated, and implanted in a substrate. The main aim of the facility is to support research into novel medical radioisotopes (e.g. the work on terbium radioisotopes at PSI [2]).

Since its first radioisotope extraction in December 2017, the CERN MEDICIS facility has been increasing its production, demonstrating in particular the ability to also process imported samples, such a neutron-activated Er-168/169 from ILL (Grenoble, France). Based on the success of this endeavour, further collaborations are planned with external partners, such as the cyclotron facility ARRONAX (Nantes, France), which will allow CERN MEDICIS to continue operation during the CERN Long Shutdown 2 (Nov 2018 - Apr 2021).

Besides its medical radioisotope program, CERN MEDICIS is now considering also supporting other research activities if beam time is available. As such, it might become possible to enrich samples with mixed isotopes, to purify materials activated somewhere else, or even to produce radioisotopes of interest to the muX collaboration.

In this contribution, I plan on presenting the CERN MEDICIS facility, its current achievements, and how the installation of the laser ion source in the coming months can impact the facility.

[1] R.M. dos Santos Augusto et al, CERN-MEDICIS (Medical Isotopes Collected from ISOLDE): a new facility, Applied Sciences 4 (2014) 265-281.
[2] C. Müller et al, Apha-PET with terbium-149: evidence and perspectives for radiotheragnostics, EJNMMI Radiopharmacy and Chemistry 1 (2016) 5.

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