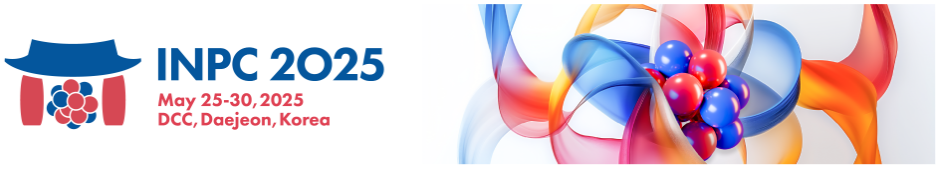

Contribution ID: **680** Type: **Invited Talk for Parallel Sessions (Invitation Only)**

Production of innovative medical radionuclides by mass separation

Monday, 26 May 2025 14:00 (25 minutes)

Nuclear medicine has seen a fast growth in the last few years through the approval of novel therapy drugs based on ¹⁷⁷Lu for endocrine and prostate cancers - namely Lutathera and Pluvicto - or the first drug for alpha therapy with ²²³Ra - Xofigo. Those new developments have also opened the door for theranostic applications, where interchanging radionuclides enables to validate the targeting vector via nuclear imaging before proceeding through with therapy.
However, most promising radionuclides for theranostic applications are not yet available commercially and their production routes are sometimes challenging. Thanks to the mass separation of isotopes, as applied at the CERN ISOLDE and MEDICIS facilities, it is possible to offer a broad catalogue of radionuclides to support medical research. In particular, the MEDICIS is being entirely operated for that purpose, separating radionuclides produced at CERN, as well as some produced externally at high-flux nuclear reactors like ILL or SCK CEN, or high-intensity proton irradiation facilities like ARRONAX or PSI. These facilities are federated around PRISMAP, the European medical radionuclide programme.
In this contribution, I shall present the use of mass separation to support medical radionuclide research, some of the recent developments at CERN, and how it coalesce within the PRISMAP consortium.

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Session Classification: Parallel Session

Track Classification: Applications Based on Nuclear Physics