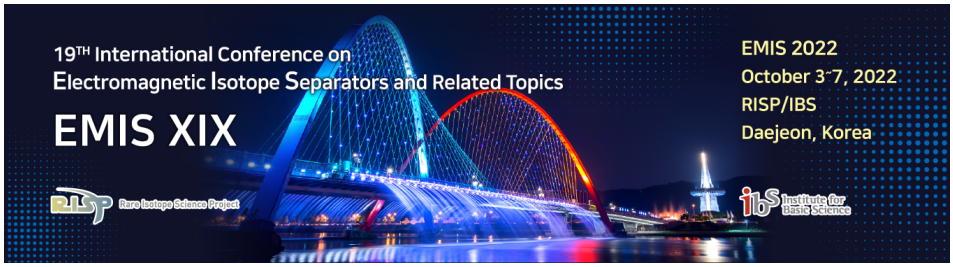

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Sustainability of enriched isotope supply for medical radionuclide production

Tuesday, 4 October 2022 23:20 (8 minutes)

Production of medical radionuclides often requires the use of isotopically enriched targets. Depending on the natural abundance of the isotope in question and the chemical properties of the element to be enriched, the throughput of isotope enrichment facilities varies considerably. Different production paths may lead to the same radionuclide, e.g. (p,n), (p,2n), (p,α) or deuteron or α induced reactions. These paths will differ considerably in production yield, in the type, energy and maximum intensity of the primary beam, but also in the employed enriched isotope target. The overall production effort, i.e. the production costs, of the radionuclide production will depend on all these parameters. Considering these interdependencies the putatively obvious choice of the reaction with the highest yield does not necessarily provide the most economic or most sustainable production path.
Based on selected case studies I will present ways to choose the most sustainable production path that makes best use of available enrichment and accelerator capacities. In particular, cases of emerging radionuclides for medical applications will be discussed that are made available within PRISMAP –The European medical radionuclide programme.

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