

Physics Cases and Instrumentation for the EURISOL-DF, next step towards Eurisol



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CERN-MEDICIS, an overview.

Approximately half of CERN protons are directed onto ISOLDE targets, producing radioactive beams by online mass separation for a wide range of studies in fundamental and applied physics. However, the vast majority of these protons end up being sent to a beam dump. The CERN-MEDICIS project envisages to re-use this fraction of (otherwise) lost protons to irradiate various types of secondary targets, retrieving them later for isotope collections for R&D in life sciences and medical applications.

The construction of a dedicated facility is nearing completion, and isotope production will start progressively from the end of 2017 onward. It is expected to provide GBq-level of isotope batches, purified by electromagnetic mass separation combined with chemical methods, collected on a weekly basis. Different institutes distributed across Switzerland, and other countries in Europe, have joint a starting collaboration that regroups various fields of expertise to perform so called translational research in medicine.

The FLUKA Monte Carlo particle transport and interaction code was used at every stage of the project, from early target design and isotope inventory to shielding calculations for the facility at every design stage. The current work details some of the different simulations performed throughout the different stages of the project.

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