Use of FLUKA for the analytical calculation of induced radioactivity in the CERN accelerator complex

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Abstract
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Beam losses are responsible for material activation in components of the CERN accelerator complex. At the end of their operational lifetime, the radionuclide inventory of these components has to be predicted in order to eliminate them towards final repositories for radioactive waste. A specifically-written code, JEREMY, calculates the radionuclide inventory analytically by using the so-called Matrix Method. The calculations involve the use of cross-sections (calculated with FLUKA nuclear models) and of representative spectra, which can be estimated with FLUKA. Calculations with JEREMY are virtually instantaneous and can be repeated over a set of input parameters for sensitivity studies.
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