

GBP MC Analysis

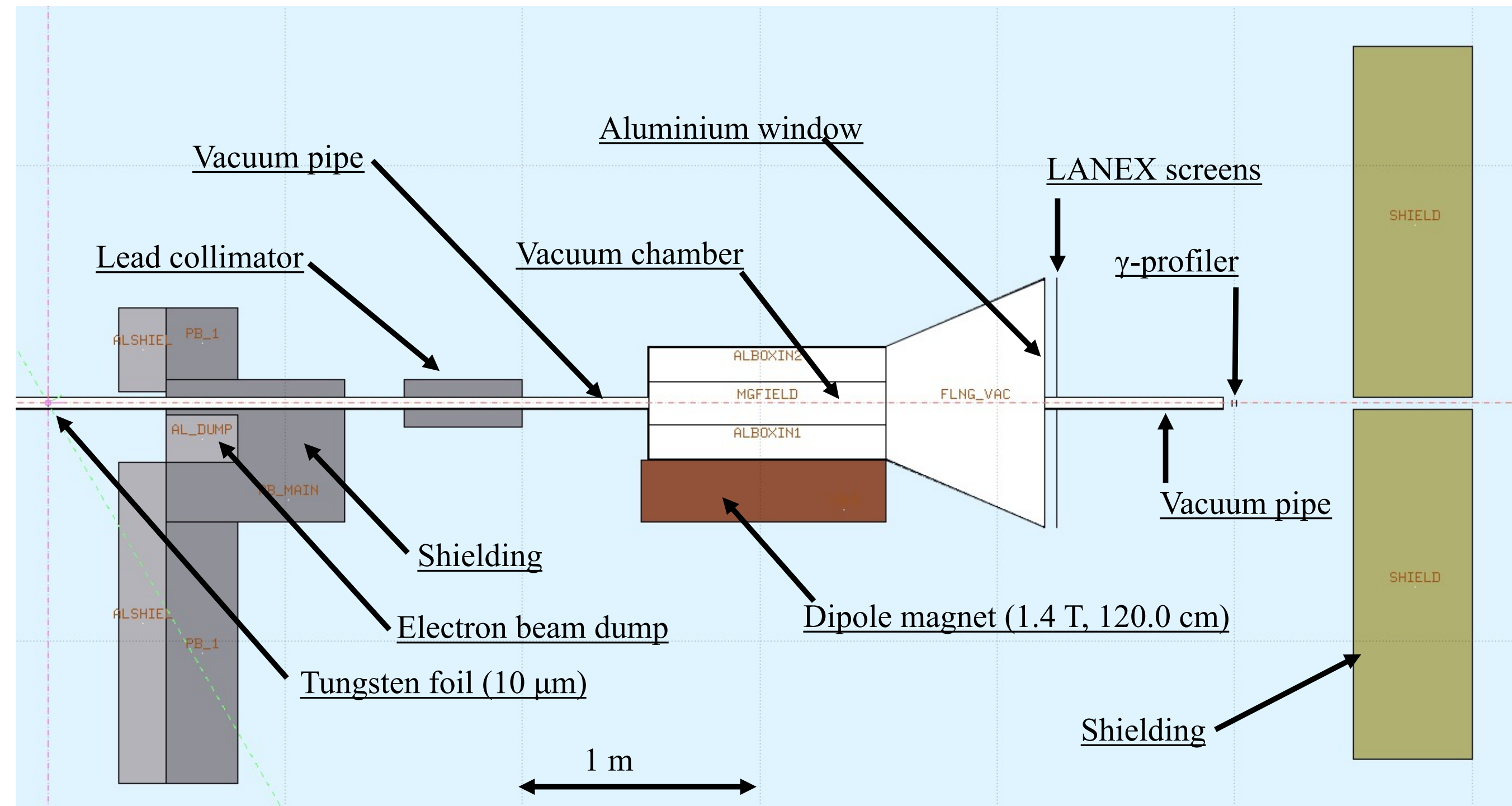
FLUKA Simulation

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FLUKA Simulations

Basic introduction

- FLUKA is an MC particle-tracking software equivalent to GEANT4
- For LUXE, FLUKA simulations have been used to cross-check GEANT4 results from full scale simulation, produce radiation maps and to optimise components of the GRS and GBP
- Two FLUKA geometries exist:
 - Gamma detection system (minus GFM)
 - Full scale geometry - converted from GEANT4 geometry



FLUKA Simulations

Further points

- FLUKA is written in FORTRAN-77 - difficult to interface with C++ software e.g. ROOT
- FLUKA geometry is 'downstream' - changes are first made to the GEANT4 geometry which is then converted to a new FLUKA geometry
- Ideally, all detector subsystems use the provided full scale GEANT4 data for analysis as a common standard
- Spectrometer-only geometry can be used for quick testing of new geometries before implementing in full scale e.g. change of environment (air -> He), station separation etc.