



G4BeamLine for MICE

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1 Use Cases

- Optimising the beamline magnet settings. This was done by G4BL during the Marco era; it would be a pity for the collaboration to lose this ability even if we have a functional beamline (A. Dobbs).
- Providing a realistic input beam for MAUS simulations.
- Estimating the proton absorber thickness necessary to remove all protons from the beamline (S. Blot).
- Simulating the effect of different MICE target parameters on the beamline particle rate (A. Dobbs, D. Forrest, R. Molina)

2 Issues

- Current structure is very complicated and largely unsupported post Marco → needs a new champion.
- Validity of current beamline layout needs to be verified / updated.
- Target model requires updating.

3 Implementation / Wish List

- Simplified system providing a series of decks valid for the various standard beamline configurations, stored in version controlled repository (bazaar).

- Accurate geometry of current beamline.
- Ability to keep geometry up-to-date efficiently via CAD import or Configuration Database interface.
- Interface to MAUS so G4BeamLine beams can easily be used by MAUS simulations of downstream beamline.
- Implement G4BL with standard decks on a central cluster for large scale jobs, such as the GRID and PPD machines (D. Forrest ran it on the GRID for his analyses).

In summary, we want G4BeamLine to be reasonably straightforward to use, use standard parameters for all the mice who use it, produce believable results, and be maintainable.