

SAS pending issues

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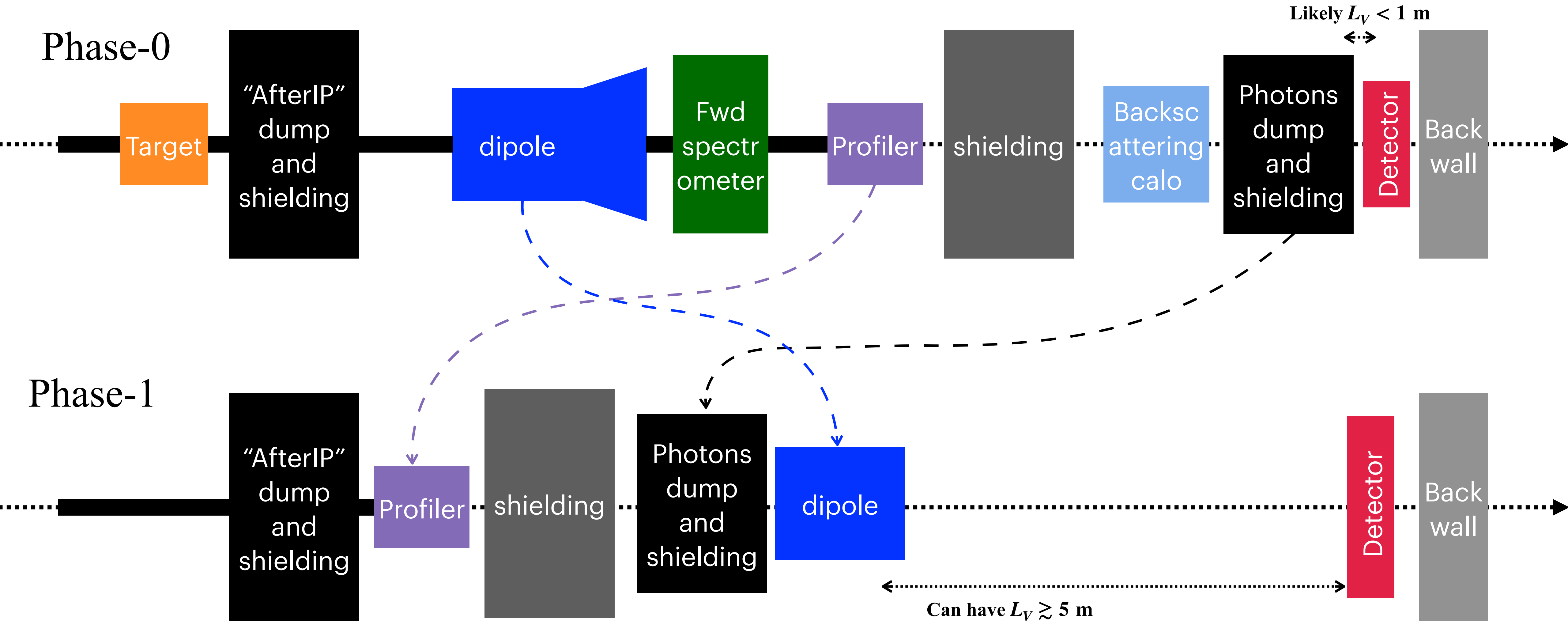
Pending issues

- New runs:
 - Signals: new linear polarization runs to be checked initially with g+laser and with the profiler
 - g(e⁺)+needle calibration runs: looking into reducing the rates with lower needle or with a different material
- Status of fast simulation
 - Arka is done with the first iteration of the neutrons and photons flux generation
 - Sasha is working on integrating Arka's output as a the input for the particle-gun in GEANT4
- Status of FLUKA simulation
 - short update in next slides
- NPOD
 - KIT group is now working on that extensively:
 - use the new run (10 μm and 120 fs pulse in phase-1, with \sim low weights) to study the bkg as it is now (improper dump)
 - redo some bkg and signal runs with different dump in GEANT4 (length, material, etc.)
 - need to increase the “range” cut in the first few cm's to allow a better description
 - discussion ongoing with spectrometer and profiler teams regarding the shuffling of the setup - see reminder in the next slides
 - Next NPOD meeting is on Thu, Jul 21, 09:00: <https://indico.desy.de/event/35350/>
- Other important bits:
 - Beam halo background: when ready integrate with full model
 - Model updates: awaiting a decision about the IP chamber location and construction

FLUKA status

- ◉ Upcoming runs:
 - ◉ g+laser: test the upstream area (the 1st electron beam dump)
 - ◉ e+laser: test the downstream area (the last photon beam dump)
 - ◉ worst-case: electrons reach all the way to the last (photons) dump
 - ◉ later: generate the Comptons at the IP
- ◉ Sasha managed to run it: seems to produce reasonable output
 - ◉ requires substantial disk space, at least 1k jobs exceed his quota
 - ◉ need some post-processing of the output as the jobs complete

Proposal for special NPOD run in phase-1



In discussion now with the spectrometer and profiler teams

NPOD actions

- Phase-0:
 - baseline model keeps changing and so we need to think generically
 - launch a small MadGraph-only signal study for a few geometries
 - must test the background with these different geometries
 - neutrons come with high stats usually and they are a good proxy for photons so, just to get a feeling, we don't need huge stats
 - dump must be compatible between phase-0 and phase-1
 - the most urgent task is to converge on a reasonable dump design
- Phase-1, in the very last data-taking period of the experiment, the main questions are:
 - can we give up the spectrometer for these runs, and if not, how much can we compactify it actually in terms of length?
 - we still need to answer the question whether or not the measurement of the Compton electrons (by the IP screen+Cherenkov systems) would give us sufficient confidence in the photon spectra that goes to the dump. Here we need to recall that we can measure the spectrum also in the spectrometer with the same run parameters just before doing the shuffling of the setup, but of course, it won't be an in-situ measurement after we shuffle. In case the spectrometer stays, there is a need to have another dipole magnet after the photon dump.
 - can the profiler station be swapped with the conversion target station after the IP?
 - the concern is the backscattered flux from the IP dump (including the high rate Compton electrons). If that is a major concern then we still have the option to move the profiler and its back-shielding wall together.
 - do we need more shielding somewhere behind the photon dump from the radio-protection point of view?
 - we are checking the radiation levels and fluxes with the worst case scenario