Dummy septum: update on the shadowing studies

S. Damjanovic, S. Gilardoni, M. Giovannozzi, C. Hernalsteens

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Outline

Estimation of the absolute losses

Error estimation for Fluka studies

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Losses estimation

Quoted numbers

- Losses in SMH16 estimated by RP: 1% ± 0.2%
- MTE design report (unbunched case): 1%
- Fluka estimates with realistic beam distribution: 0.55%

Analytical estimation

- Model assuming simple Gaussian beams and septum blade considered as a "black hole"
- Estimates are 0.65% ± 0.1%

Outline

Estimation of the absolute losses

Error estimation for Fluka studies

Error estimation

Errors on the losses computations

- Dominated by the statistical error due to the sampling of the beam distribution
- At the beginning and end of the bump, only the large amplitude tails of the distribution are interacting with the blade → reduces the statistics and increase the relative error ⇒ have to increase the number of particles in these distribution (and keep the weight constant)

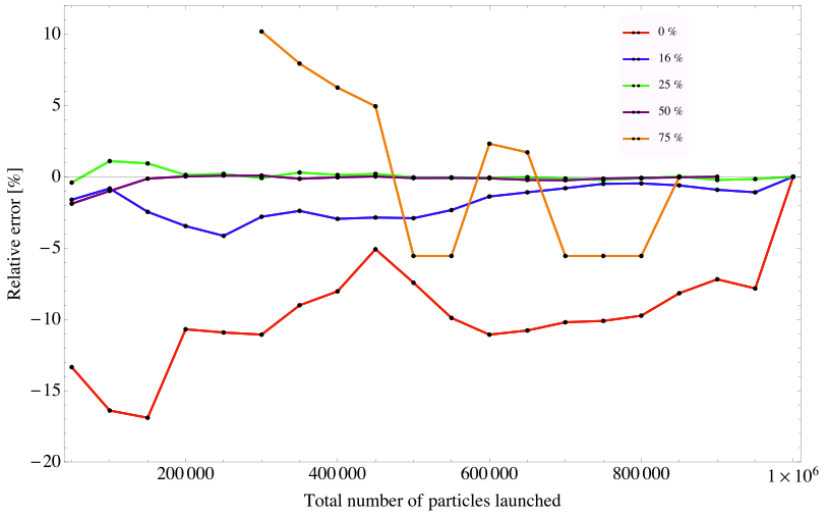
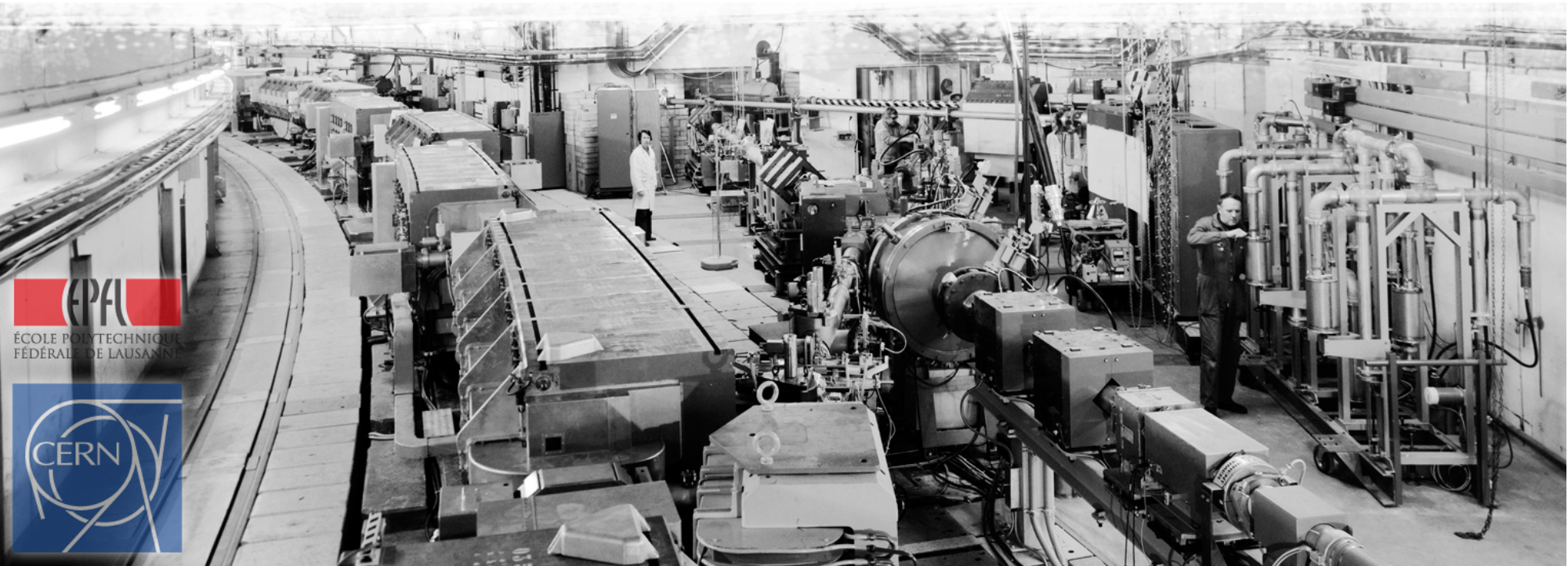


Figure 1: Relative error as a function of number of tracked particles

Conclusions

Coming studies

- Control of the error on the losses
- Losses as a function of time
- Stray radiation maps (SS15 + SS16) for different configurations
- Iterations to optimize the blade position

Thanks !

Questions ?