Update on BIB studies

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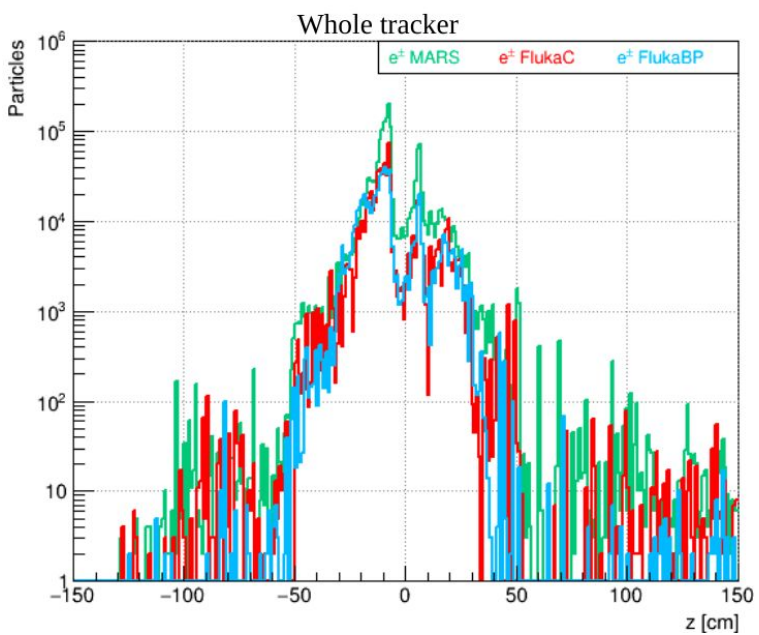
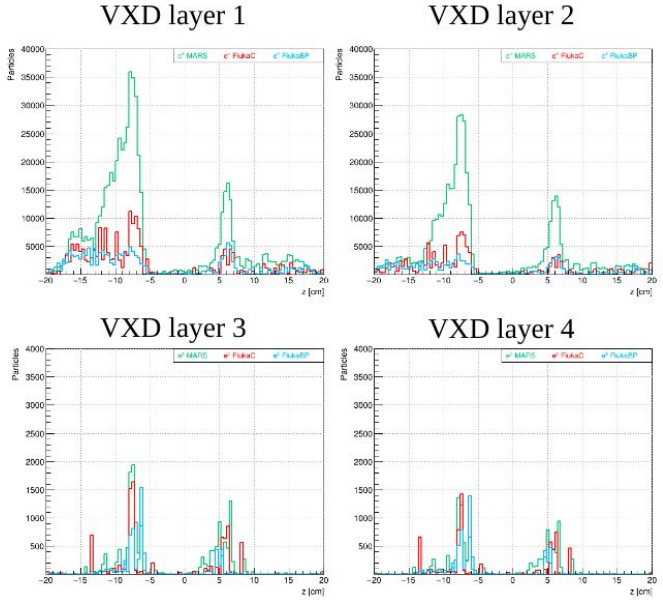
In the last episodes…

Checking differences between MARS and Fluka BIB simulations at 1.5 TeV

- Tried several configurations
- Apparently, yet no evident explanation





The focus

Now, mainly focusing on BIB level quantities (**just one beam**)

- Using a MDI geometry configuration very close to the one used by MARS
- High-statistics starting sample (~5% of BIB)

- In principle, similar BIB should impact in the same way in the detector

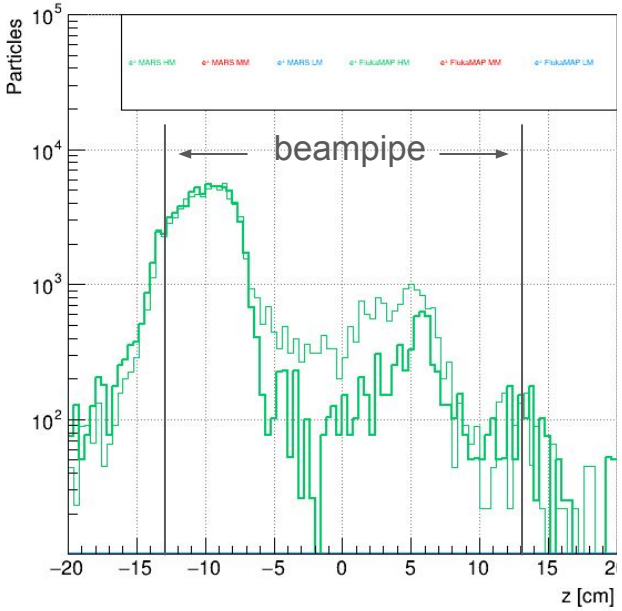
- In particular, working with **electrons**

- Electrons have been divided in three momentum ranges:
  - High Momentum (HM): p>10 MeV
  - Medium Momentum (MM): p>4 MeV and p<10 MeV
  - Low Momenutm (LM): p<4 MeV

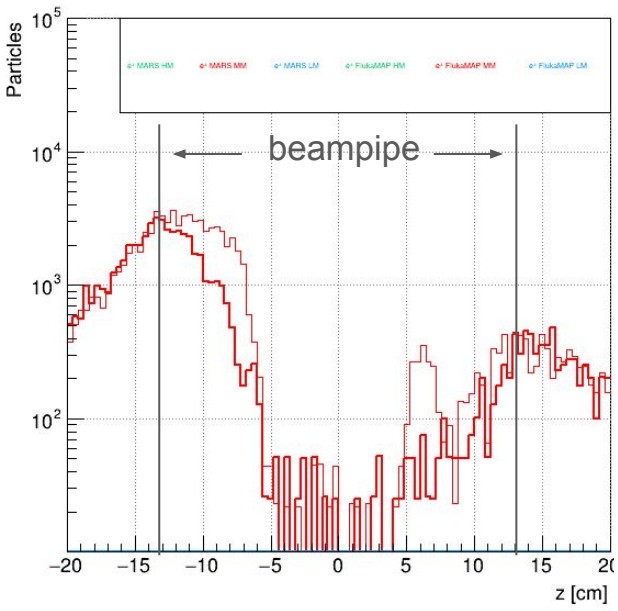
Position z distributions

Finer line = MARS, **thicker line = Fluka**

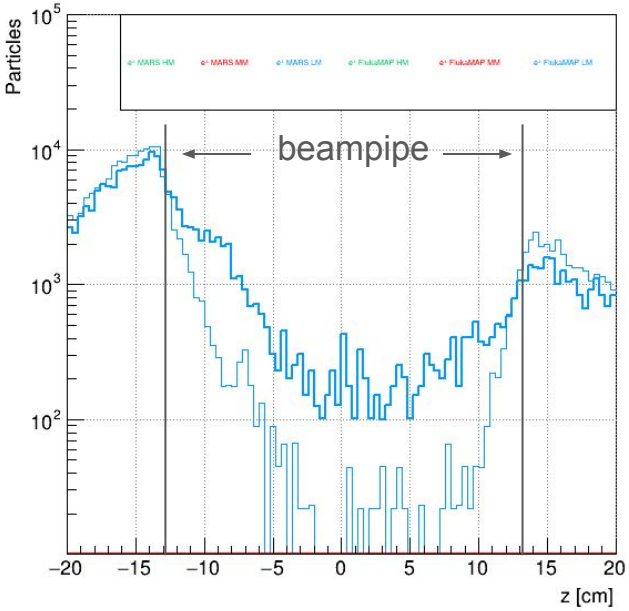
High Momentum



Medium Momentum

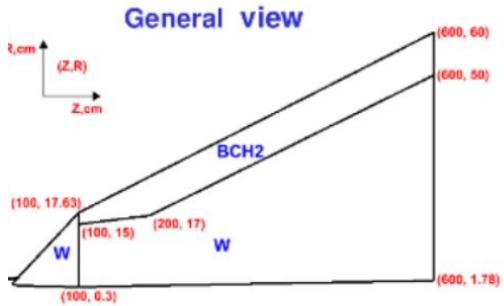


Low Momentum

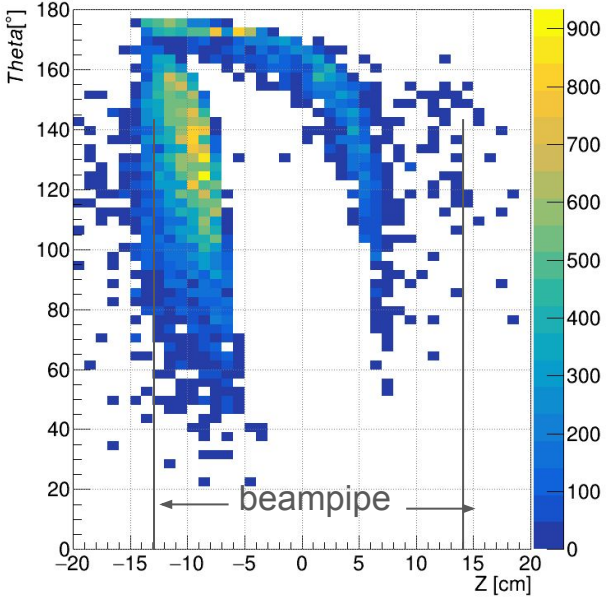


Theta vs z distributions

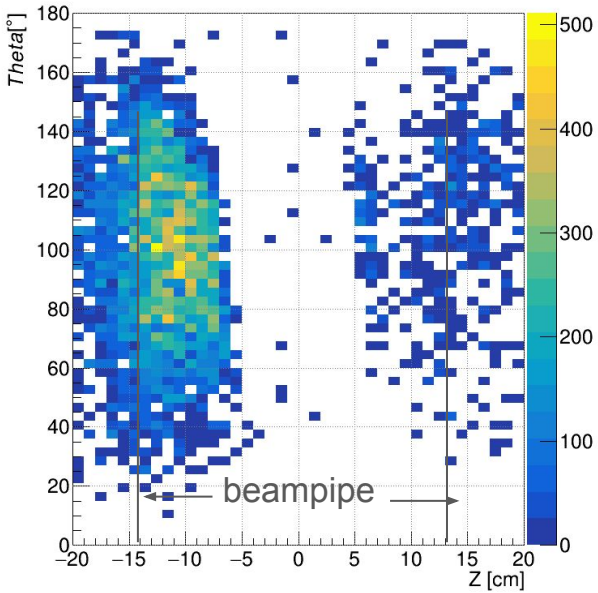
MARS



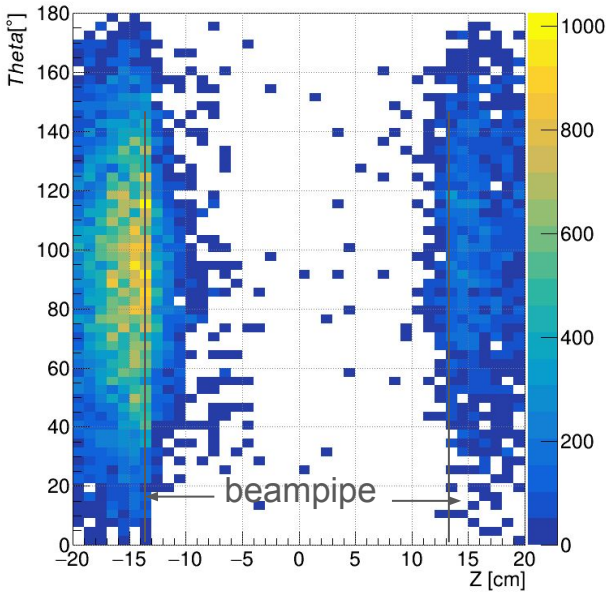
High Momentum



Medium Momentum

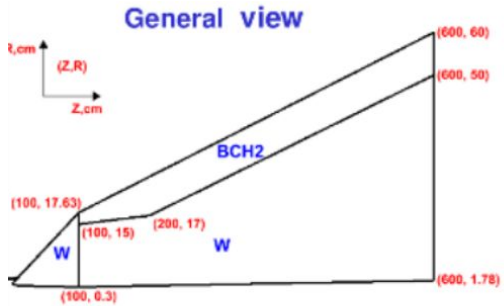


Low Momentum

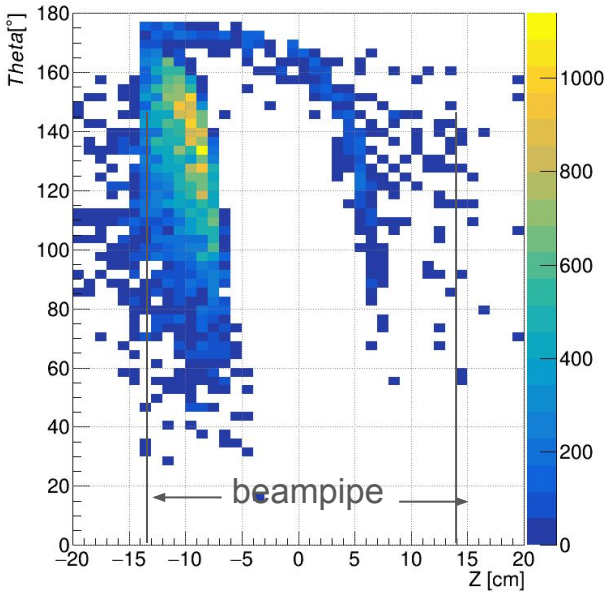


Theta vs z distributions

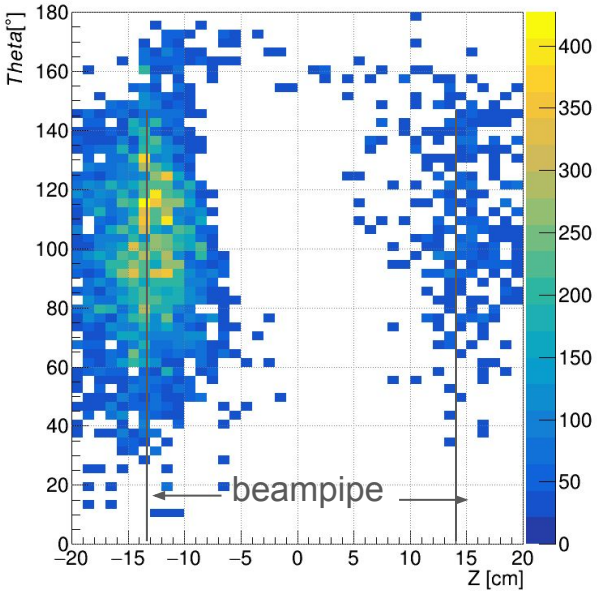
Fluka



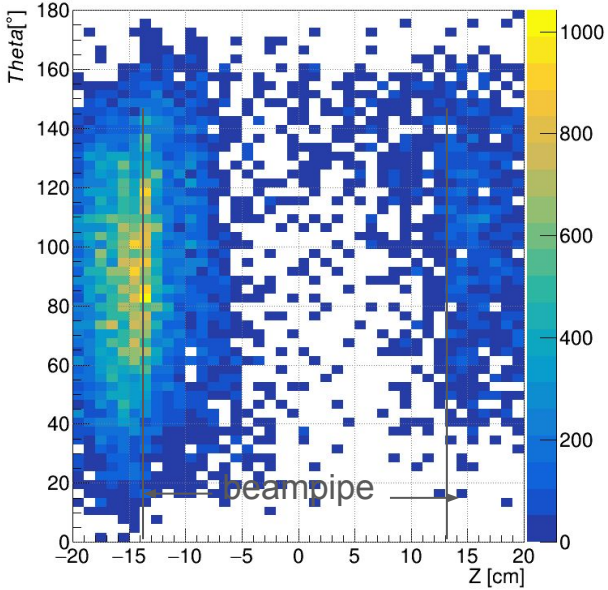
High Momentum



Medium Momentum



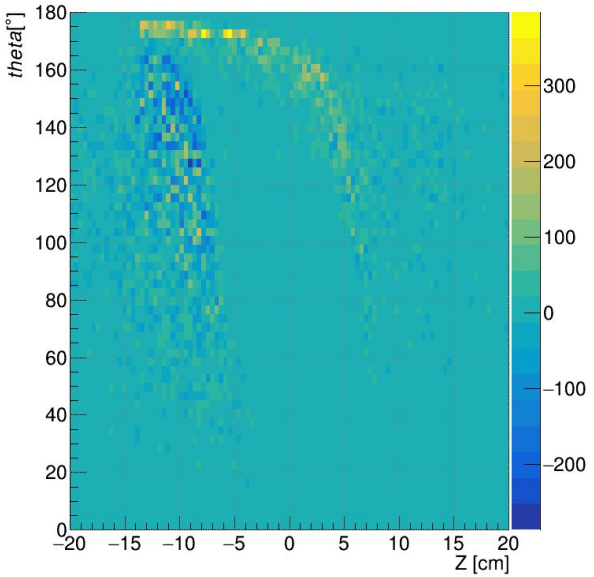
Low Momentum



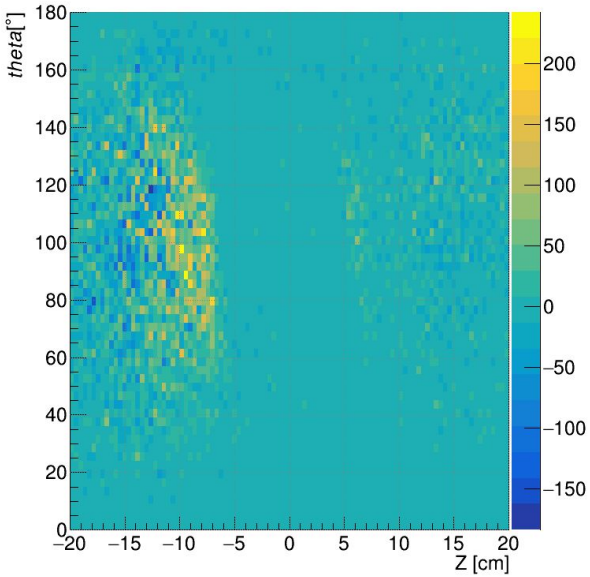
Subtraction 2D distributions (theta vs z)

Finer line = MARS, **thicker line = Fluka**

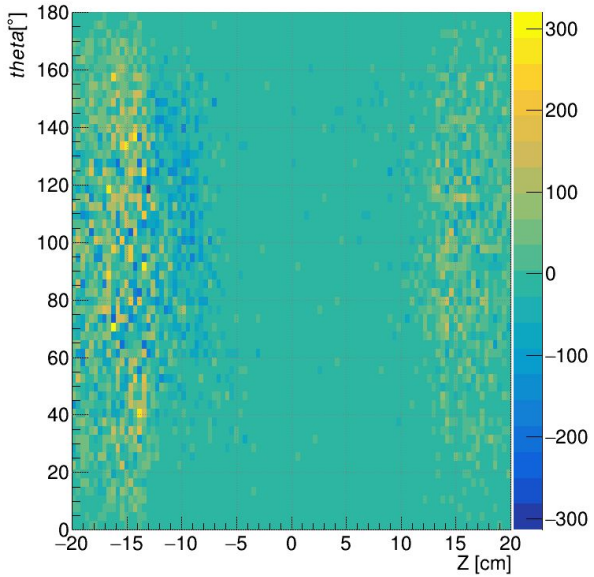
High Momentum



Medium Momentum



Low Momentum



Conclusions

Apparently, also at BIB level there are some differences (never spotted before)

- Go on with some checks (time distributions, etc…)
- Consider also photons

Now the question is: suppose we confirm these differences, what should we do?