Intro

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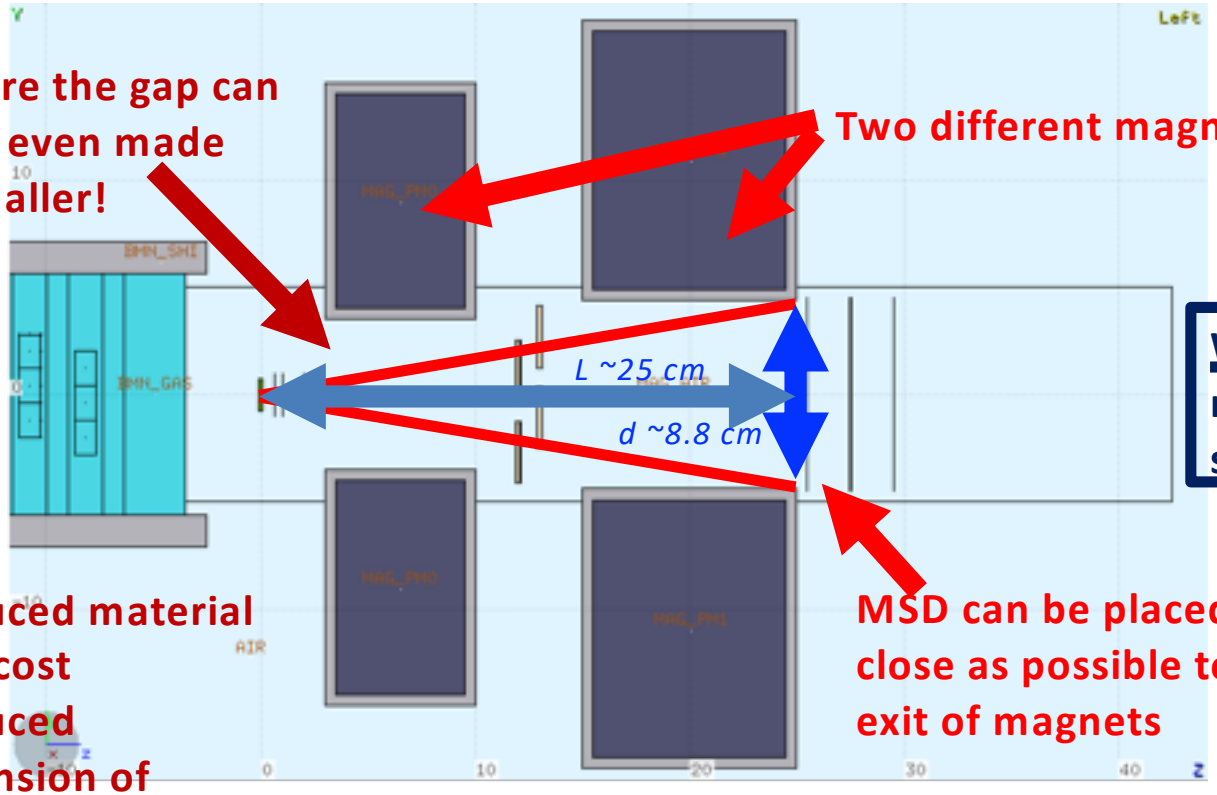
From the Elba Meeting

Alternative magnet design:



Short summary after "Magnet Meeting" in Frascati on June 6th

If the gap between the 2 magnets is kept at 5 cm, and 5 cm of distance between target and 1° magnet:

- **Max total length of two magnets: 18 cm**
- **Not clear if we really have to go to 2 different magnets**
- **Notice that 18 cm is the «mechanical length», not the «magnetic length»: the front and back aluminum cover is 0.5 cm thick. Example: a magnet 9 cm long will have 8 cm long magnetic material**
- **Diameter of aperture of second magnet: 9 cm, to cope with MSD size. If magnets are equal both of them will have an aperture of 9 cm of diameter.**
- **It will be required to manifacturer to select material so to have possibly a higher magnetization, so to recover something in $B \bullet dl$**
- **Some requirement on field uniformity at the level of a few % will be required**

More recent news:

- **There is a chance that it will be really possible to reduce the gap between the magnets**
- **There is realistic possibility to increase a bit the max B field**

Analysys was carried out to try to understand if we really could take advantage from longer magnets

Clarification and documentation required by INFN referees

A brief summary document has been promised for July 10.

Preliminary conclusions:

1) for the measurement related to particle therapy (200 MeV/u) the improvement in resolutions (mostly on mass number A) deriving from longer magnets is quite moderate, if we can achieve the "golden" resolutions of ToF and Calo.

2) At higher energies (700 MeV/u for instance) the measurement of p becomes more and more important since the Calo starts to be less useful in this regime.

However, in real life it is important to maintain our capability of achieving a good p measurement, in case we could not succeed in practice to reach our best expectations on TOF and Calo resolutions. In such a case p measurement helps in A fits.

FOOT Simulation Tutorial

It was held in Milano on June 13/14

Participants: Aafke Kraan, Alberto Mengarelli, Sofia Colombi, Ernesto Lopez Torres, Lorenzo Scavarda

https://agenda.infn.it/conferenceDisplay.py?confId=15908

Everybody can find there some presentations describing the most important aspects.

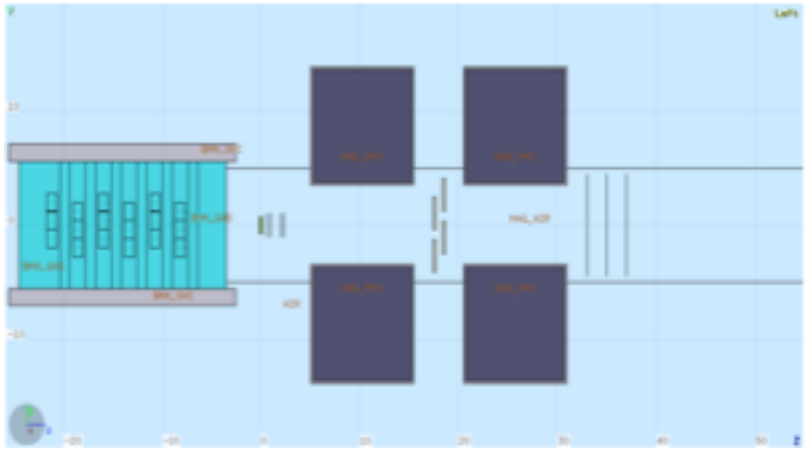
Time was limited and only the most important issues were summarized. However we are now starting to have a larger team that in the next future should be able to carry on the work required for FOOT

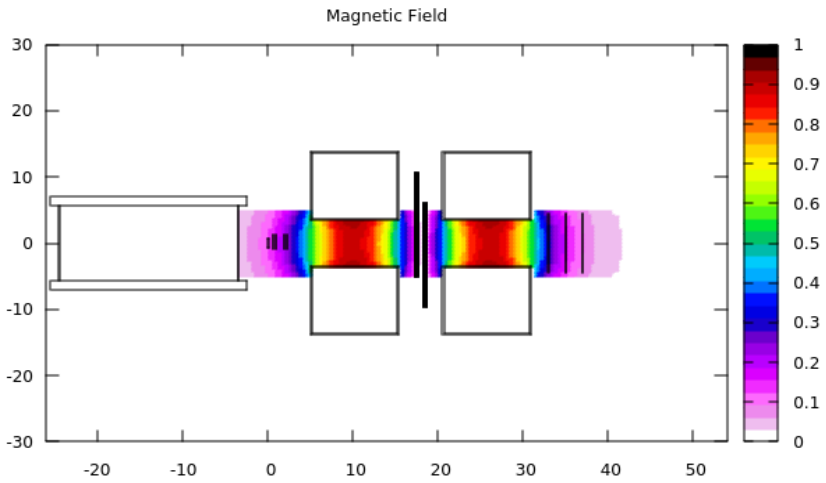
For the ECC side some tutorial was deliverd 2 years ago. Some integrated work ECC+Electronic Apparatus could be useful in the next future

This meeting was also helpful to exchange some first ideas and concerns about the organization of software work

Next challenges - 1

Towards a next version of design of the magnetic region





It will be not like that

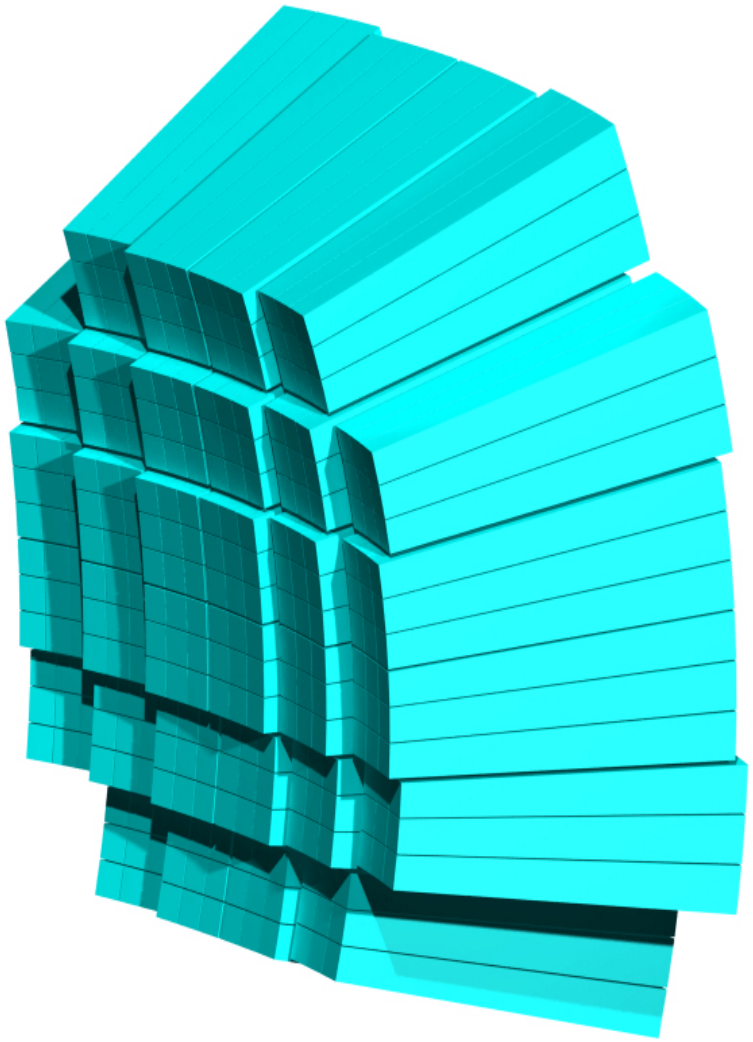
Definitve design does not exist now

However: there was confusion about length of magnetic material and mechanical length:

Magnetic map is not fully consitent…

Alumiinum cover will be different…

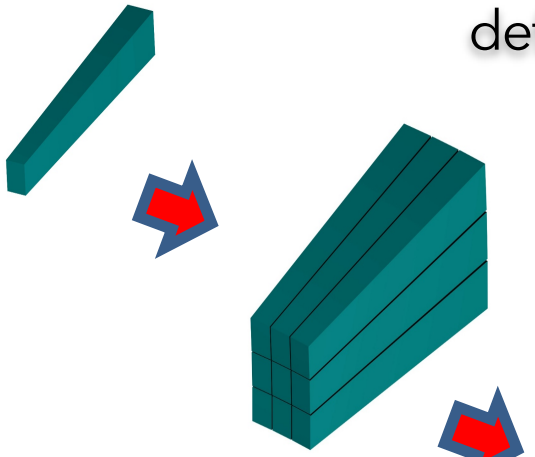
Next challenges - 2



Calorimeter Modules layout

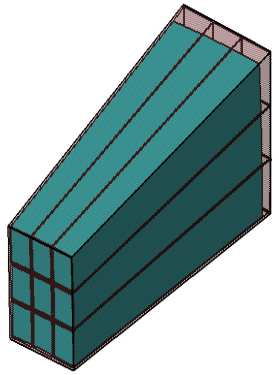
arrangement of 32 modules
1 plastic box design

Module definition



Matrix 3x3 crystals

Plastic box



Next challenges – 3: From the Elba Meeting

A lot of work has been done but there is a lot more still to do…

Different distances, materials and parameters for Intermediate Tracker (see talk by E. Spiriti)
Gap between scintillator bars (see talk by M. Morrocchi)
New geometry of calorimeter, plastic boxes,… (see talk by P. Cerello)
Different thickness of MSD, spacing, layout… (see talk by L. Servoli)
Soon we shall hopefully have a new magnetic system layout
…
Man power with the proper training is unsufficient. This is now a bottleneck

Practical organization of next Simulation+Analysis work

Some issues:

- **The management of geometry by means of SHOE is working but appears to be somewhat complex and clumsy… Can it be improved?**
- **There are now too many different versions of Simulation setuup. There are now a lot of different SHOE branches**
- **How do we proceed toward a good merging and management of work organization?**
- **How do manage to have an ordered bookkeeping of simulation production? This would become particularly urgent in view of future work which will be possibly divided among different people in different places**

Vertex Reconstruction Software Meeting and other on-going activities

Let me remind that there is a new mailing list for software developers in FOOT: foot-software-develop

https://lists.infn.it/sympa/info/foot-software-develop

On June 25 there was a shrt and limited meeting dedicated to VTX reconstruction, Digitization and clustering

There is in progress a work to integrate in SHOE (Mi+Pg) information from MSD in order to prepare the forthcoming test-beam activity for the new measurement of space-time relations with the BM