

Some numbers for the Lol preparation



And few updated information

★ Length available to house the MuonE full apparatus

➡ numbers are taken by the drawings of EHN2. They show that:

42 m without any problems (just hard work by the beam group)

50 m are the grand max taking out some elements of the final focalisation of the COMPASS beam (*MUCH WORK FOR THE BEAM GROUP, and EXCLUDE COMPASS run*)

55 m recovering **5 m** more **IF** elements of COMPASS detector are taken out

For more, one has to start ***DIMOUNTING COMPASS***.....

For the LOL we could consider 50 m as acquired

this means, after allocating the space for a calo (0.5 m ??) and muon filter (3 m Iron + ~ 30 cm active chambers ??)

~ 45 m for the tracker

➡ **must optimize target thickness and lever arm of tracking**

Two basic schemes (numbers in meter):

	scheme 1	scheme 2
T1 - 1st Si layer	0.25	0.25
1st – last layer	1.0	0.50
Last layer – T2 (*)	0.10	0.10
<i>Total per station:</i>	1.26 m	0.85 m

(we considered 60 stations)

1.26 x 60 = 75.60 m

0.85 x 60 = 51.00 m



Too much in both cases
(+ ~0.30 m CALO + ~ 3 m μ -filter + chambers)

We must find where a possible compromise is

?? smaller numbers of stations  *less total material*  *less stat*

?? Thicker targets? (*more MS corrections*)

?? Other possibilities

(*) some spacing is needed to avoid backscat from small electrons from the T2 target.

Important for the Lol, but related to the final setup:

Preparation of the 2021 PILOT RUN:

assume : 2 stations fully equipped
 + calorimeter
 + muon filter

We use the Lol to apply for the approval of beam time to run in the final location (upstream COMPASS) in **2021**.

It will be crucial to explain exactly the goals of such a 'pilot run':

?? *establish angular resolution for the the two outgoing particles*

?? *use 2 different geometries for the two stations?*

(ex: 1 with 1 m lever arm, and one with 1.5 or 2 m?)

?? *estimation of the statistics which could be taken:*

→ assuming **M2** standard, $\sim 3 \times 10^8$ events/week

→ which kind of early measurements will this allow

?? *eventually use thicker targets (1.5 cm??)*



Please check

NB:

Both COMPASS and NA64 have already applied with either a Lol (COMPASS) or a proposal of experiment (NA64) for beam in **2021 AND 2022**.

If we do not present the Lol for SPSC meeting of **June 14**, we are **OUT**

Few other information:

★ The μ –filter, if IRON, can be found at CERN (*they have tons of Fe around*). We must provide the active chambers.

★ Including the BSM DAQ in our DAQ: in order to see if that is possible, and how, we need the ‘permission’ of COMPASS, the owner of that apparatus.

★ COMPASS and NA64 are very close to be compatible running together....

★ Running in 2021 there are some unknowns: when the beams will start, how long will be the running, which efficiency of the machines (much depends on LHC, etc...).

We will ask the last window in time, not clear when it will be.

From the discussion with Johannes B.:

Comments on Mechanics:

Johannes had no contact request by G. Cantatore or M. Incagli about the thermalization solutions. I asked him to contact them if he hears nothing. (they must know some details of our requests...)

Comments on alignment:

to monitor continuously the position in z of the tracking planes in each station can be **very expensive**: the reachable precision is technologically at hand (*they know how to do it*), but more precision more expensive...(and the monitoring is 1 (3) point(s), internal distortions are not known)

 *Beniamino ???*

REMIND the time schedule for our Lol:

- ➡ **Final Deadline is the < 10th June 2019** *(the sooner the better),*
date limit at which we must deliver the document to SPSC
(SPSC meeting on 12-13 June)
- ➡ **Circulate the Lol to everybody to read and comment:**
must be done at the latest within the 20-25th May
(collect, correct, add, etc...)