

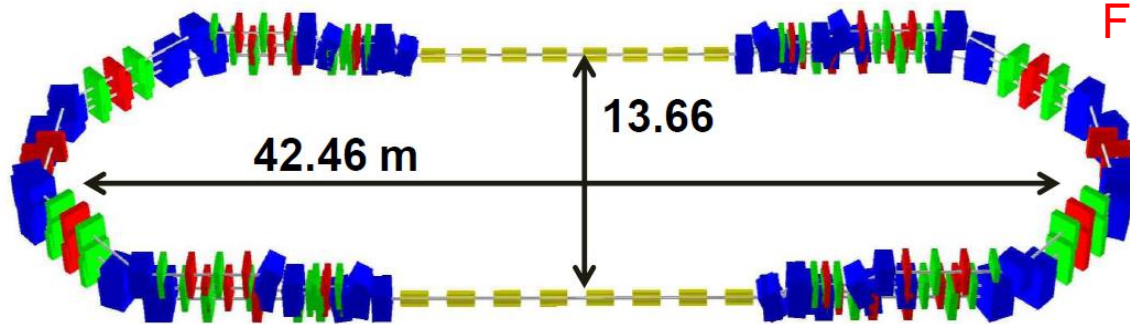
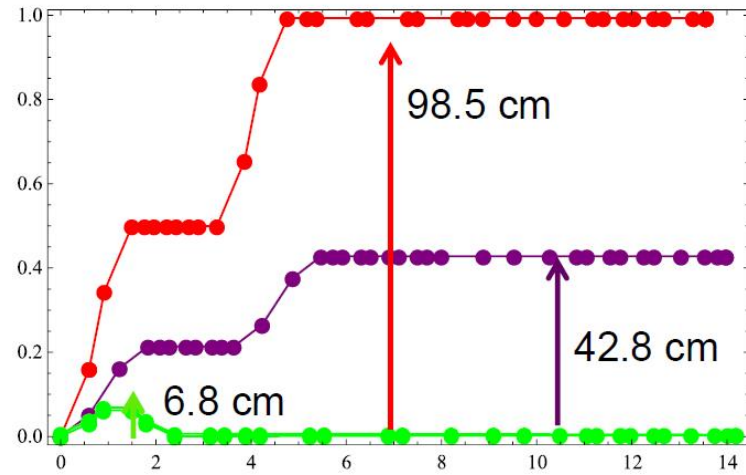
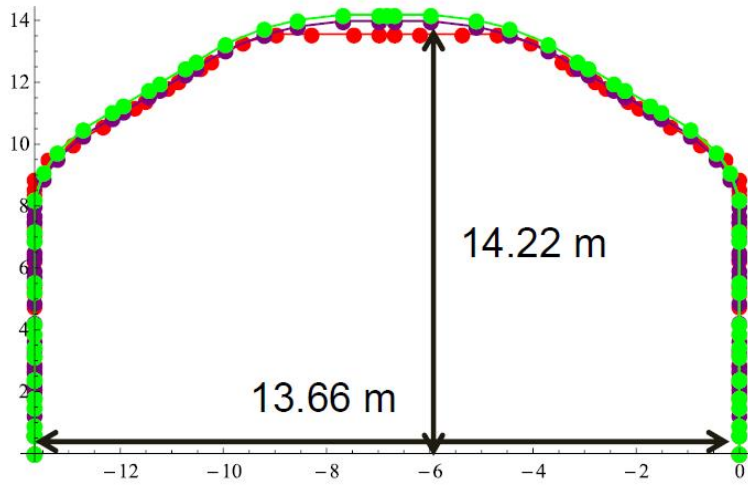
Site considerations for ERL-TF

N. Catalan Lasheras

LHeC workshop 25.06.2015

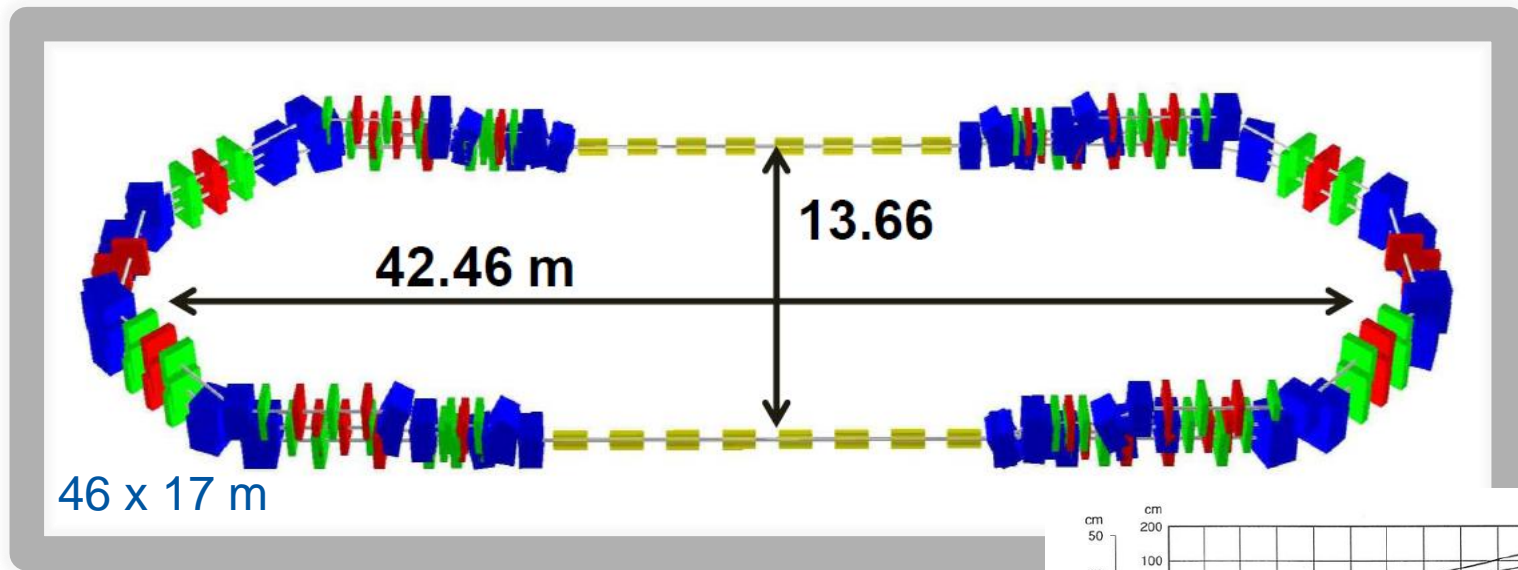
Foot print from accelerator
Space requirements
Possible locations
Conclusions

Accelerator footprint

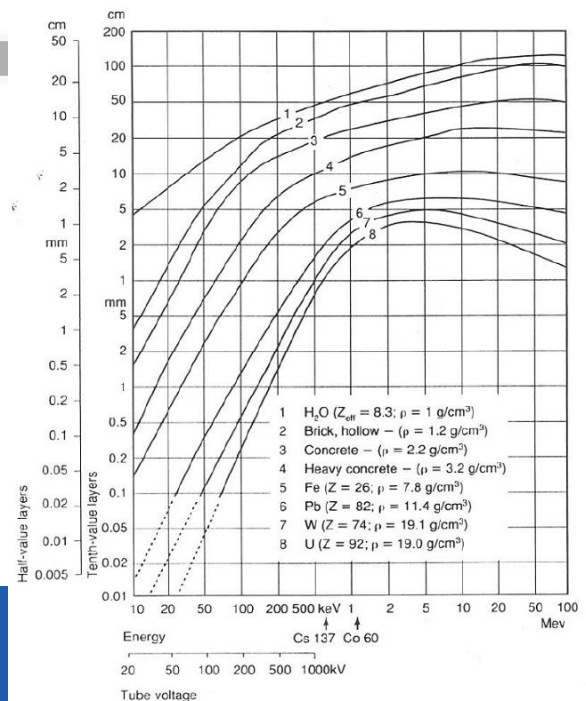


From A. Valloni

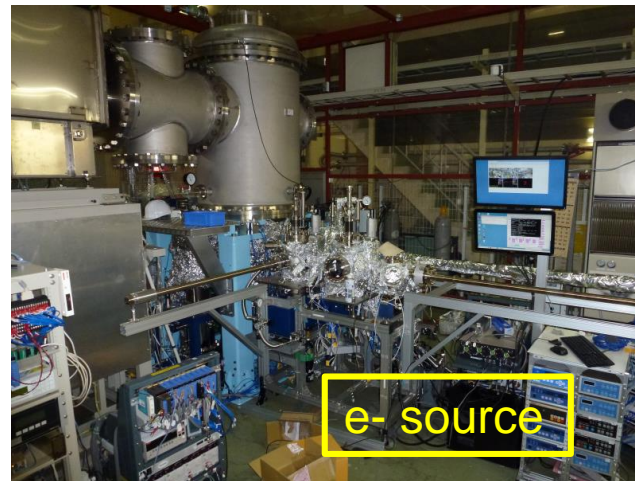
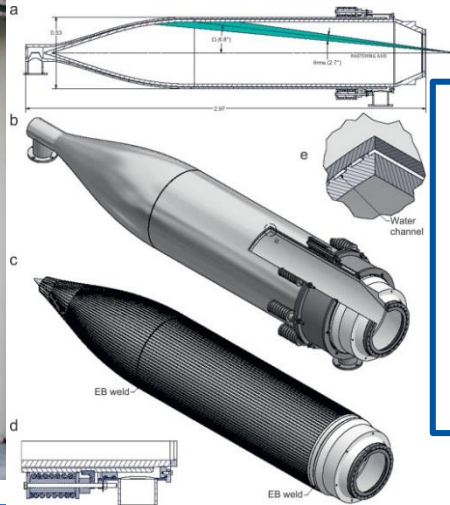
Passage and shielding



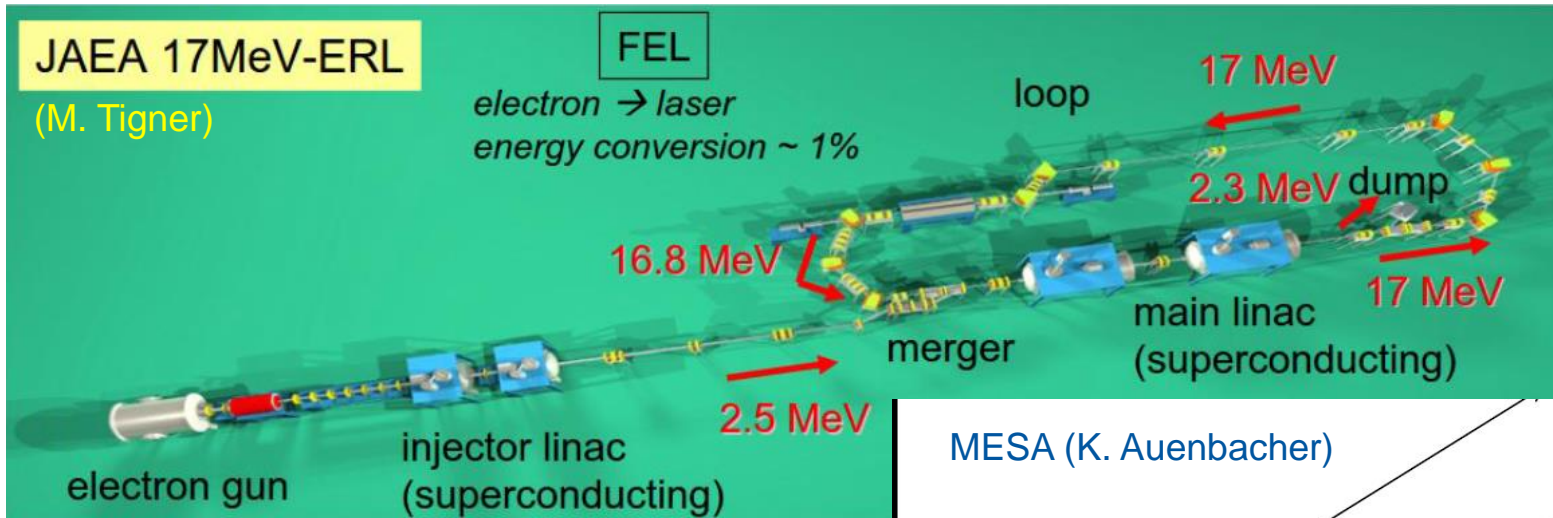
- Shielding and passage ~4m on each direction
- Assuming 50cm concrete shielding
- Can be reinforced with heavier materials if space is a concern or for special areas
- Minimum passage for interventions 1.20 m



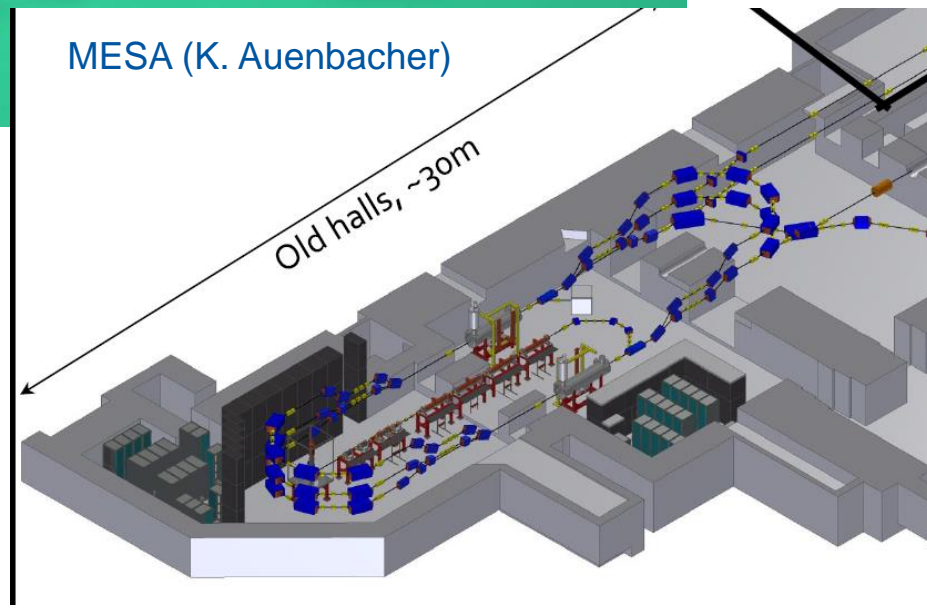
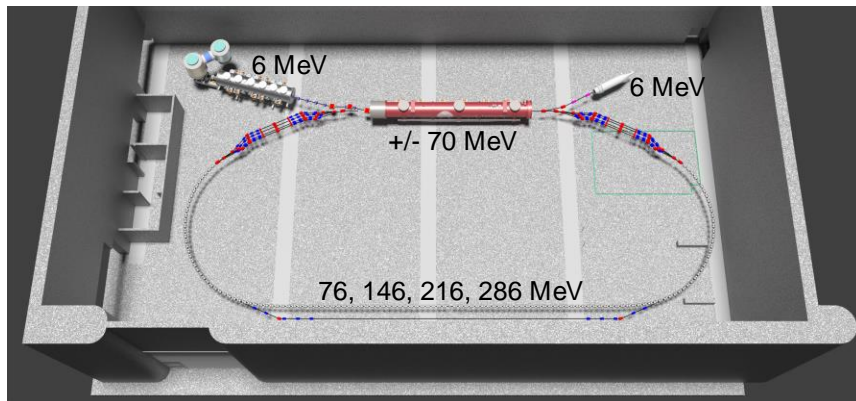
Other systems



How much more space?



FFAG for eRHIC. (G. Hoffstaetter)



Total space needs

46x17m ~ 800m²

- double the area of the accelerator itself to allocated all services. 1500 m²
- some services like RF power generation or power supplies may be placed on a different level than the accelerator itself,
- We do not consider here the use of the interior part of the ring as the scape route would be compromised.
- It may however be used to house a low energy dump which itself needs to be shielded and who will be on restricted access.

This is a significant size comparable to CFT3, AD or ISOLDE

How many buildings are there at CERN that can host a facility of that dimensions?



- B. 180 Magnet recovery facility
- B. 112 Brazing + LHC Klystrons
- B. 378 TE/EPC testing
- B. 193 AD + ELENA
- B. 513 Computer Center
- B. 3185 ATLAS shafts
- B. 133 Recovery material
- B. 170 ISOLDE
- B. 150 LEAR
- B. 157 EAST HALL
- B. 100 Main Workshop
- B. 510 Main building
- B. 400 LINAC 4



- B. 889 SPS Access point
- B. 897 Central Storage
- B. 867 Radioactive facility
- B. 888 COMPASS
- B. 887 North Hall
- B. 890 EN-CV for North Hall



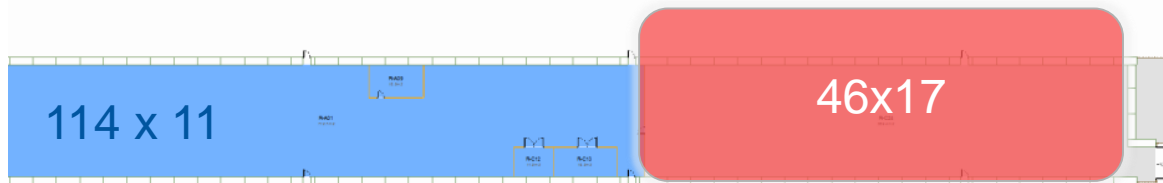
- B. 2275 LEP converters and Klystrons
- B. 2252 Alice Assembly hall
- B. 2173 SM18
- B. 2485 Shaft of point 4
- B. 2685 Shaft of point 6
- B. 3585 CMS Hall
- ... most SPS BAs

Building 973. Former QRL testing

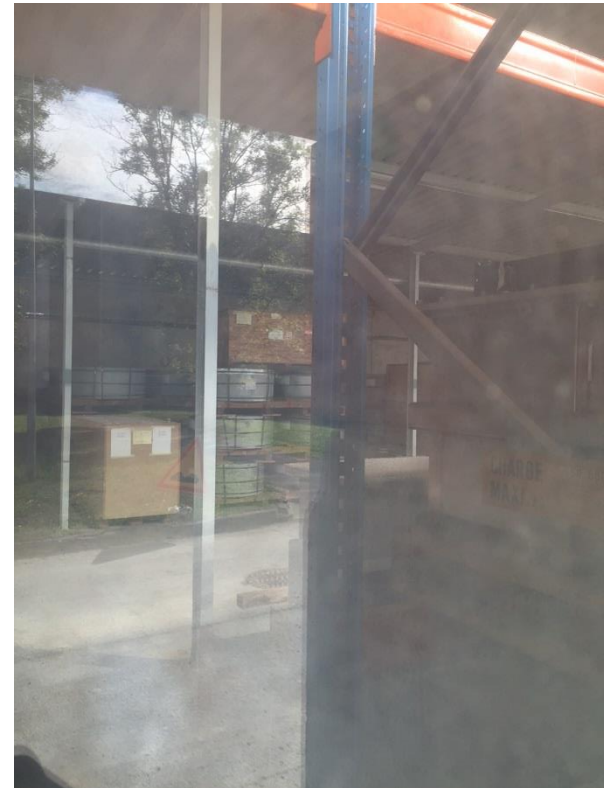
Built for LHC- QRL testing.
Currently used by EN mostly
as storage
On the limit of the Preveessin
site. Possible extension to be
investigated

Some cryogenic infrastructure
already available
Constructed from shielding
blocks

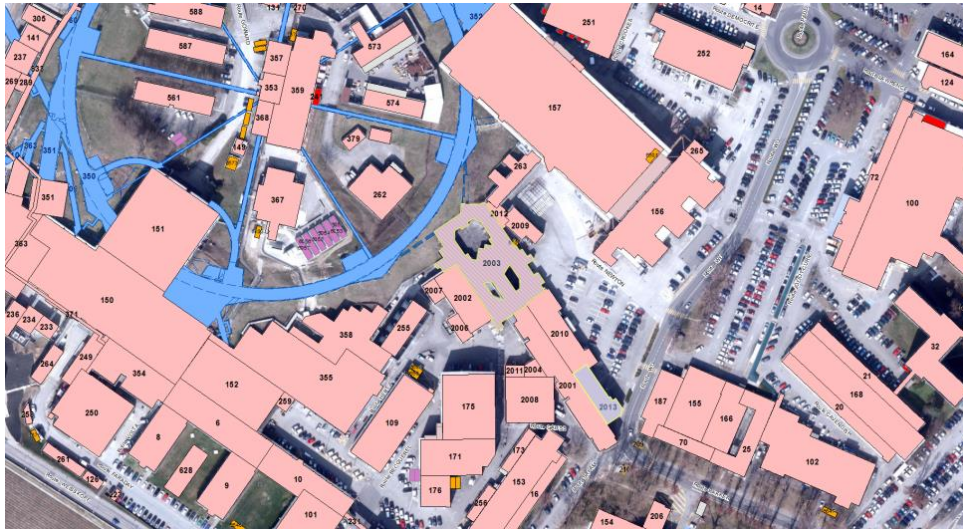
No crane
Narrower than required



Building 973



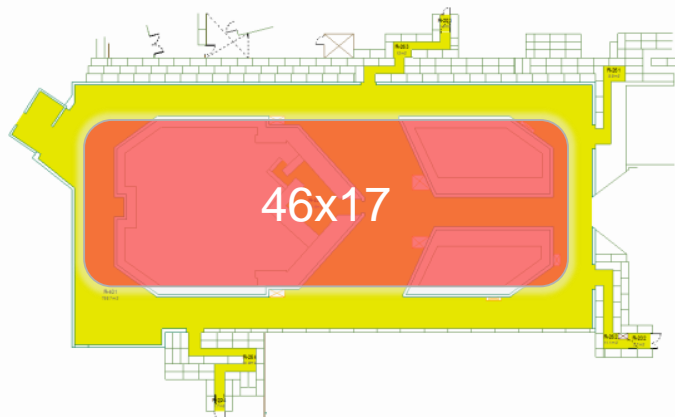
Building 2003 CTF3 combiner rings



Currently CTF3 to end operation in 2016

It is a beam facility:
shielding, access, galleries,
etc

Complicated topology.
Expensive to clean out



60 x 25

Cryogenics?

Building 2275. Point 2

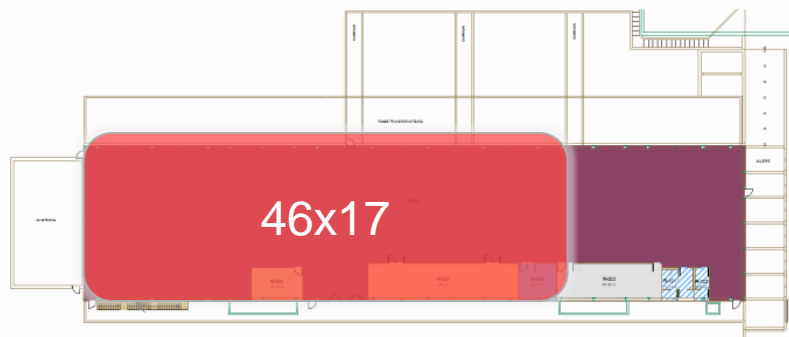


LEP power converters and klystrons spares.

Power converters already in place.

Geographically good as injector for LHeC ERL

In use for LHC TI2 and Alice. Could we share the space?



71x16

building 2275



Around point 18



No space available in any of the buildings on the site but lots of empty space around it.

Why not build a new facility building in the north storage area?

Cryogenics water power and other services already available. May be upgraded
Accessibility for quench tests

Completely new construction

Conclusions

- Lattice seems to be converging and with it the site dimensions
- A small number of buildings in the CERN site could host the facility
- Very dependent of the final implementation
- Costs and time is very much site dependent
- Maybe better/simpler is we assume a new building?

If you happen to have 1500m² available, please contact us.

Thanks for your attention!

Extension of SMS18 (3197)

