

# 2014 SPS North Area Test beam

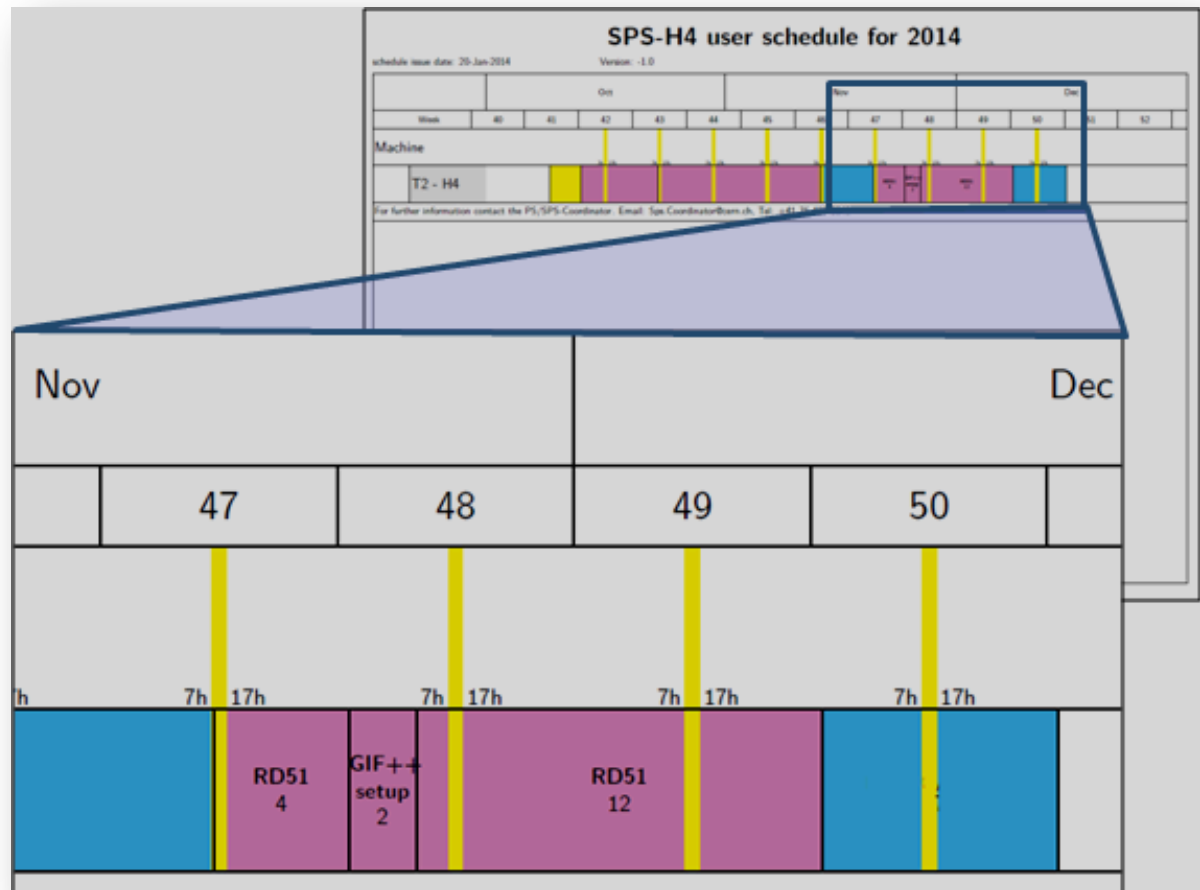
## Very Preliminary schedule

Beam availability for rd51 as  
main user (H4):

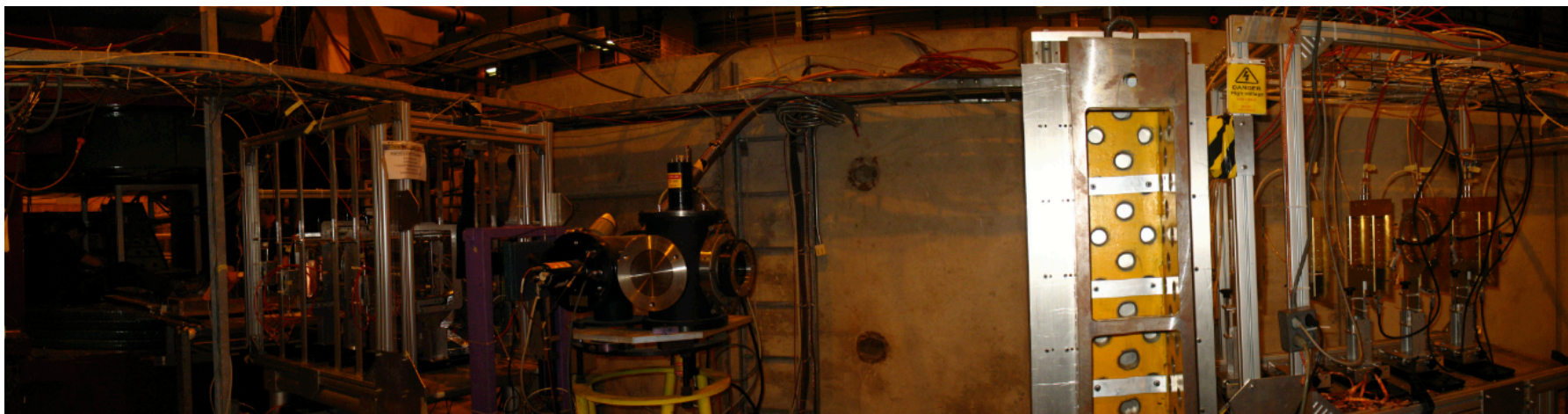
*16 days*

Period:

*End of November,  
Beginning of December*



# Useful info for new users



# 2014 rd51 Test Beam SPS North Area

# H4 beam line

- **The** H4 beam line is located in EHN1. It is a high-energy, high-resolution general purpose beam suitable for both experiments and tests. Main parameters:  $P_{\max} = 330$  (450) GeV/c,  $\text{Acc.} = 1.5 \mu\text{Sr}$ ,  $\Delta p/p_{\max} = \pm 1.4 \%$  The maximum momentum is 400 GeV/c.
- **detailed user guide:** [H4](#)
- **Beam types:**
  - polarized protons for  $\Lambda 0$  decay, enriched low-intensity beam of anti-protons, or  $K^+$
  - electrons from  $\gamma$ -conversion,
  - Attenuated primary beam, Heavy ion beam
- **Maximum intensities** for  $10^{12}$  incident protons at 400 GeV/c:
  - $n^+$ , e fluxes similar to H2
  - $\sim 10^7$  protons at 400 GeV/c
  - $\sim 10^7$  Pb

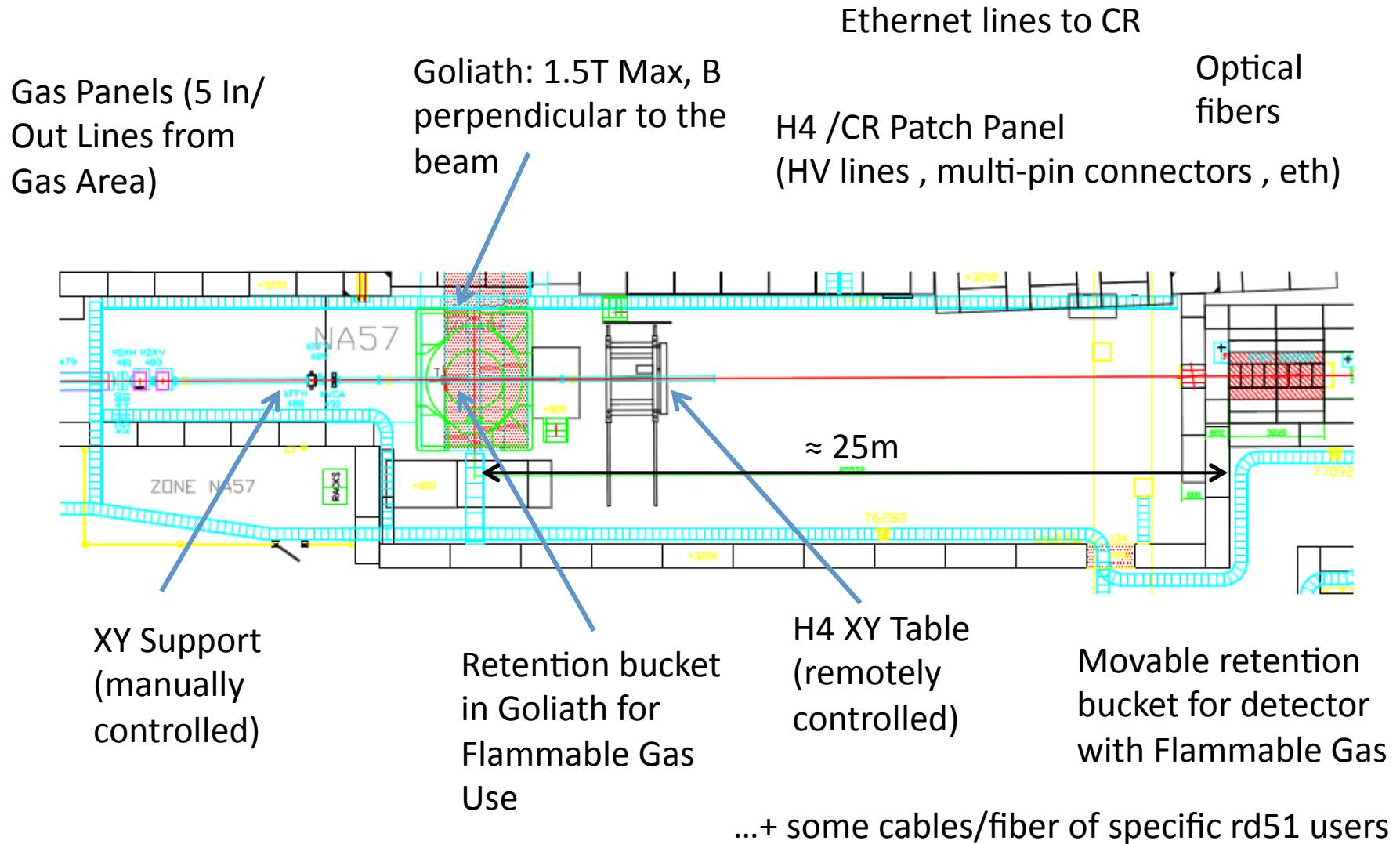
## The type of particles

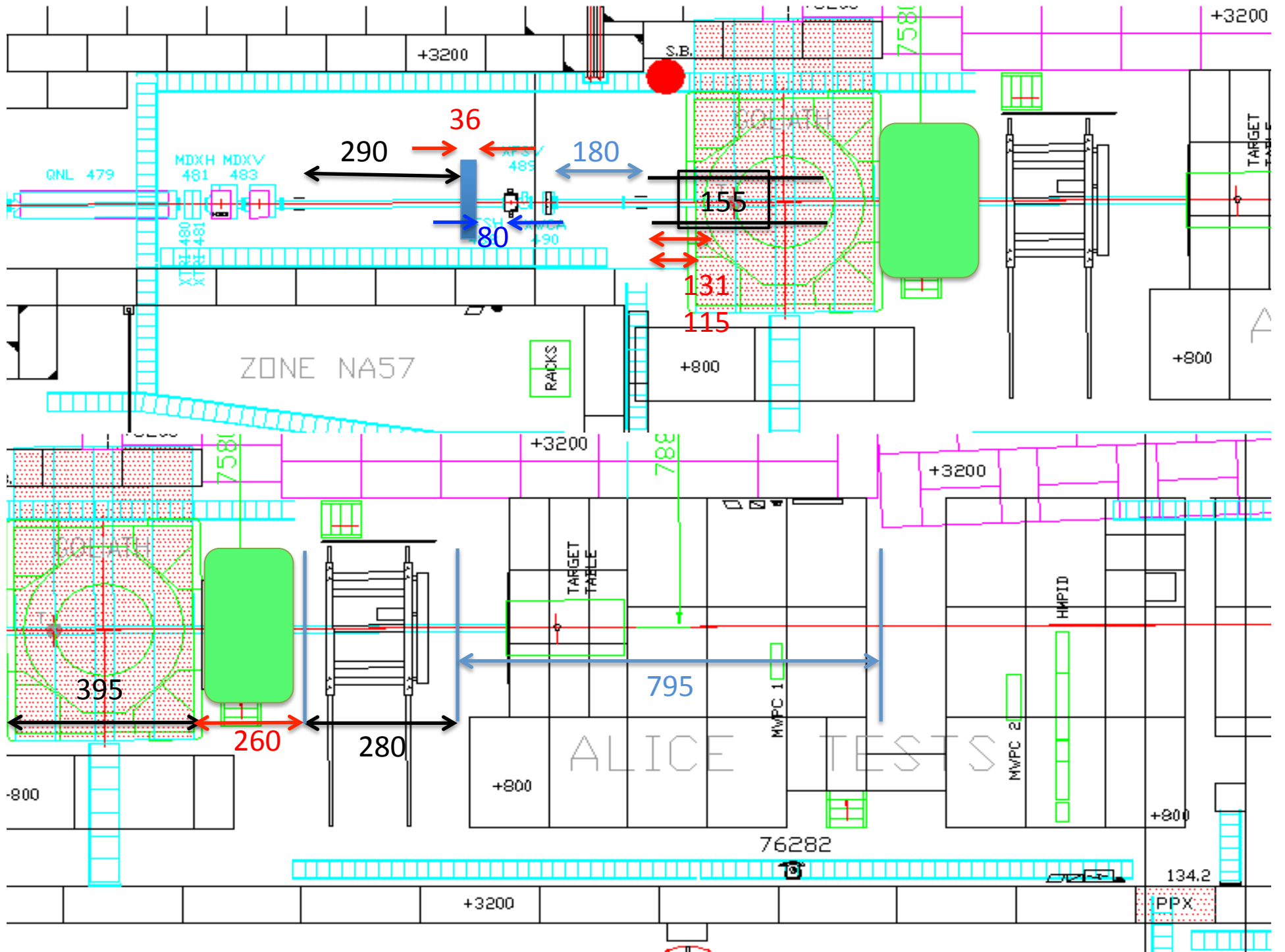
- Electrons from converted gammas
- Hadrons from decay of lambdas and kaons
- Secondary pions and protons
- Muons

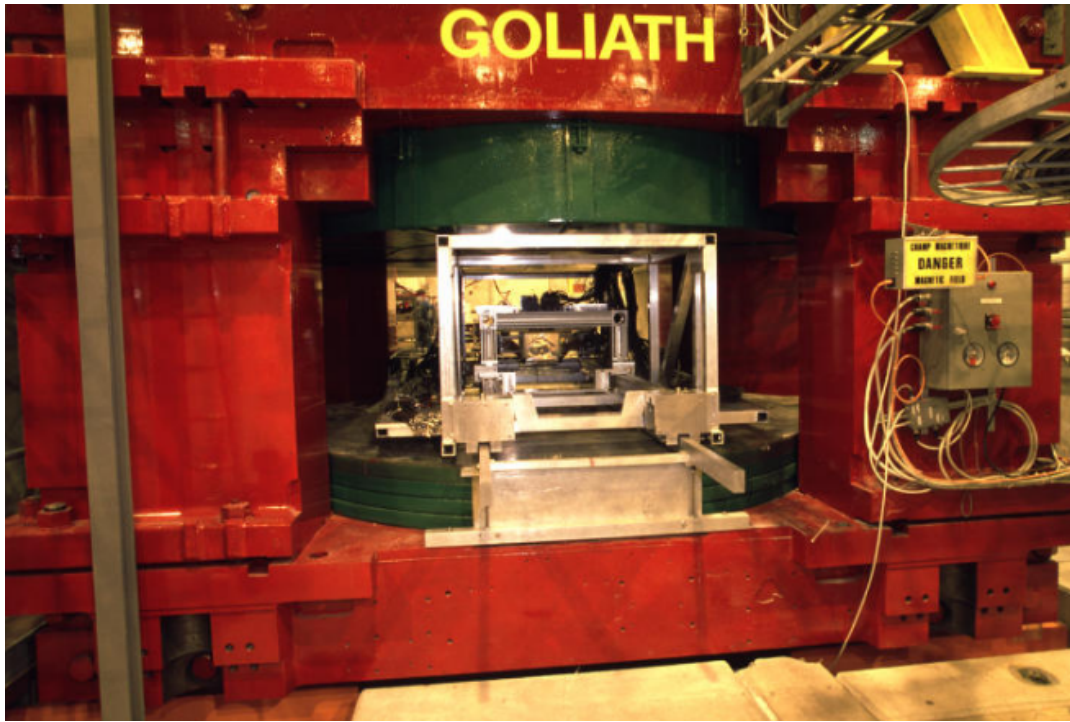
<b>Main Parameters</b>	
<b>Pmax:</b>	360 GeV/c (SPS at 400GeV/c) or 400 GeV/c for primary protons
<b>Acceptance</b>	$\pm 1.5 \mu\text{sr}$ (2.5 $\mu\text{sr}$ at $p < 200\text{GeV/c}$ )
<b>max <math>\Delta p/p</math></b>	$\pm 1.4\%$
<b>Dispersion at momentum slit (C3)</b>	27 mm / % $\Delta p/p$
<b>Intrinsic <math>\Delta p/p</math> with slit = 0</b>	0.05%
<b>Beam height in EHN1:</b>	2060 mm
<b>Beam length</b>	$\sim 655$ m

<http://sba.web.cern.ch/sba/BeamsAndAreas/resultbeam.asp?beamline=H4>

# H4-Common Test Beam Facility

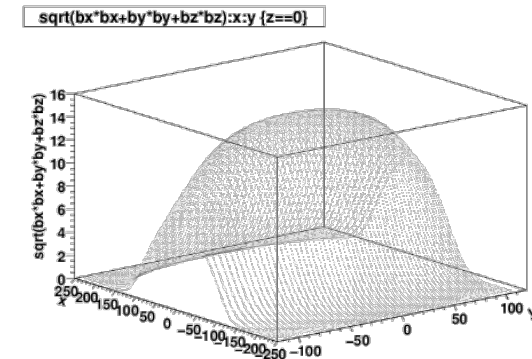






M. Alfonsi (CERN)

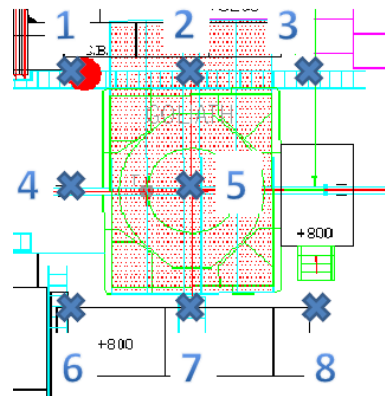
RD51-WG7 2009-VI 28/04/2009



Field map realized during NA57 experiment,  
file decoded by Frascati group

Power: about 2MW  
Maximum field: 1.4T  
Gap volume: around 8 m<sup>3</sup>

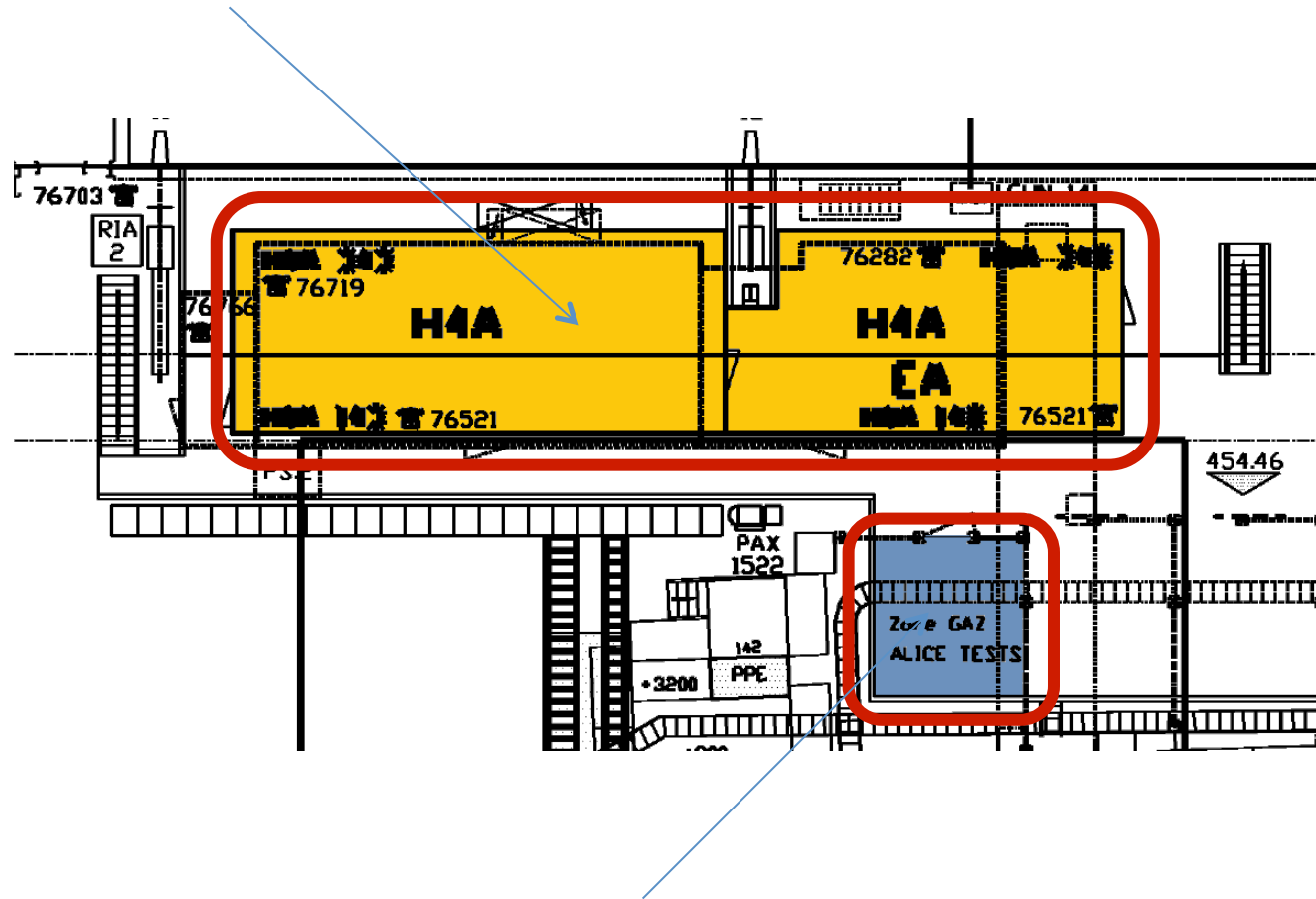
[http://ab-div-po-mpc.web.cern.ch/ab-div-po-mpc/Pages/SPS\\_EA/Spectro/Goliath/Goliath.htm](http://ab-div-po-mpc.web.cern.ch/ab-div-po-mpc/Pages/SPS_EA/Spectro/Goliath/Goliath.htm)



Point	Half Current	Maximum Current
1	0.0005 T	0.007 T
2	0.0004 T	0.010 T
3	0.0005 T	0.007 T
4	0.005 T	0.011 T
5	0.868 T	1.518 T
6	0.0003 T	0.006 T
7	0.0009 T	0.009 T
8	0.0004 T	0.008 T

# CR & Gas Zone-Common Test Beam Facility

Control/Counting room



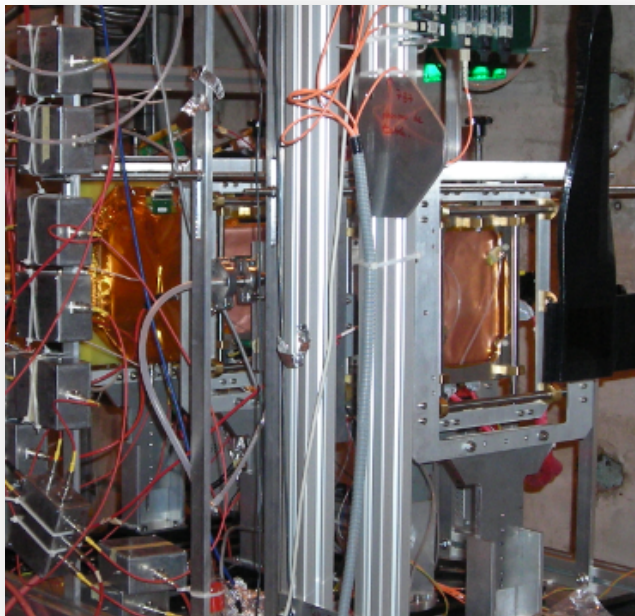
Gas Zone:  
Distribution Panels to/from experimental area.  
Possibility to have flammable gases.



# Rd51 trackers

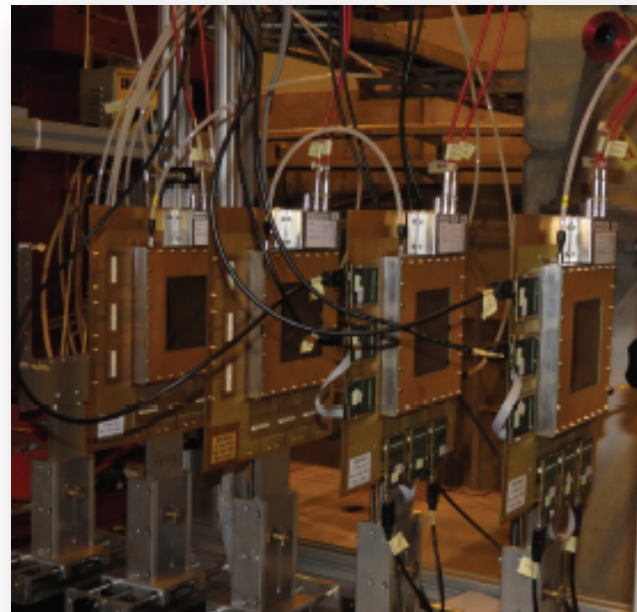
- Triple GEM Tracker

- XY strips readout, 400um pitch
- 10x10 cm<sup>2</sup>
- APV (VFAT2)
- DAQ&FE: SRS/APV (TURBO/VFAT)

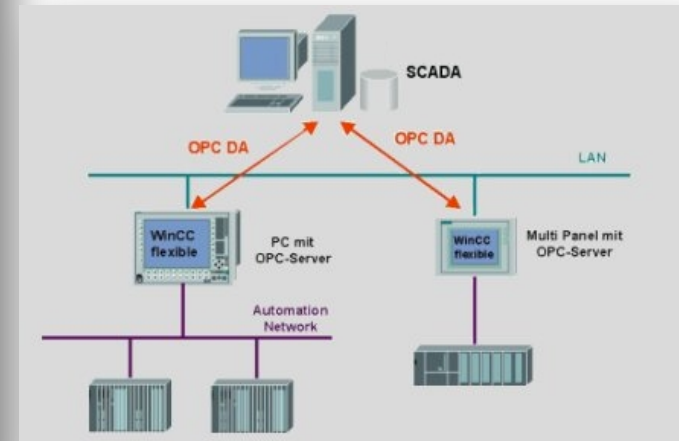


- Resistive  $\mu$ egas tracker

- XY strips readout, 250um pitch
- 9x9 cm<sup>2</sup>
- APV
- DAQ&FE: SRS/APV



# Slow Control System (HV/LV)



K. Karakostas