CERN Test Beam Update and Schedule

- Talk prepared by **Horst Breuker** (PS/SPS Physics Coordinator)…
- …and presented by Christoph Rembser

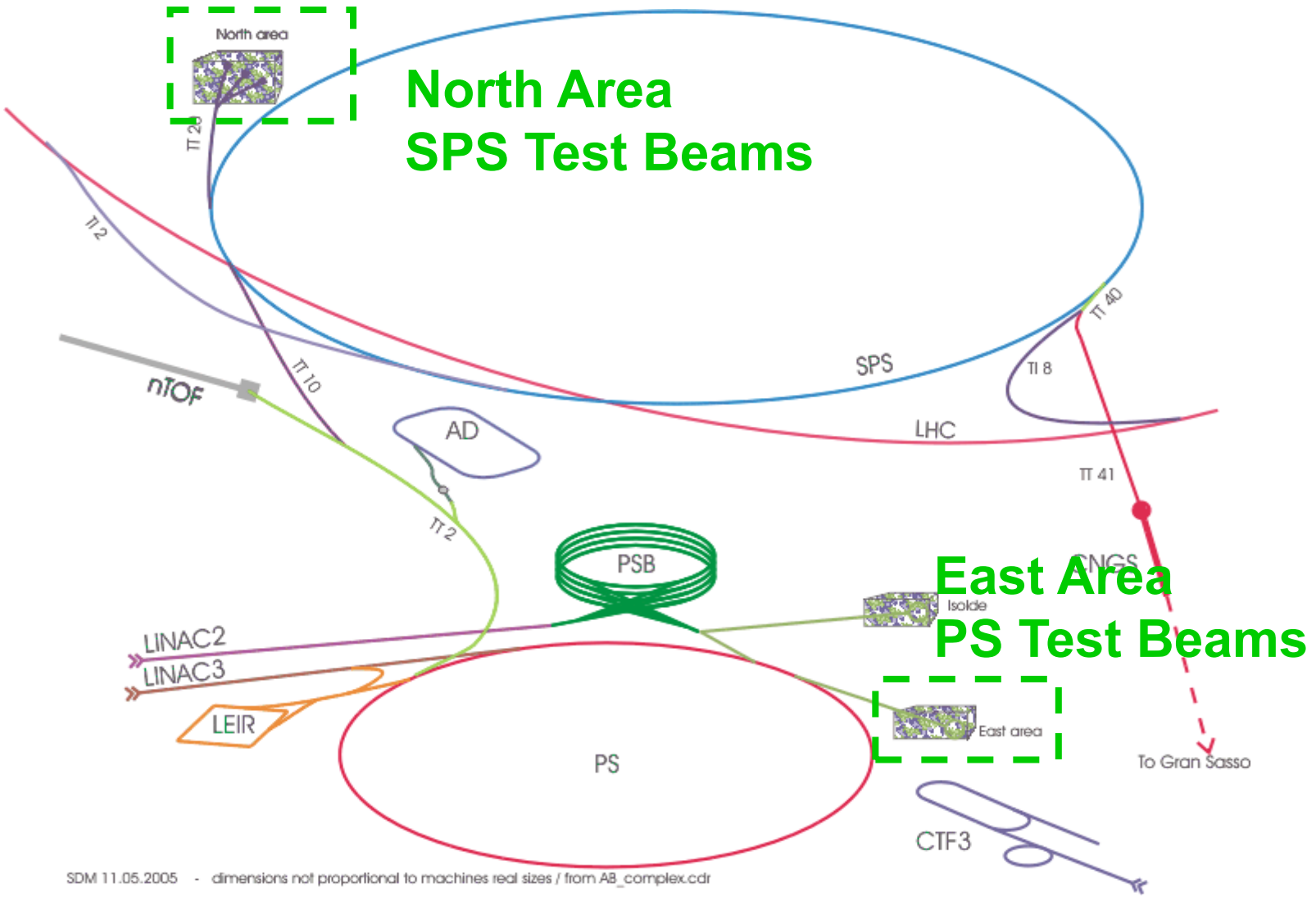
PS/SPS Physics Coordinator 2005 – 2007…

…and now

CERN Test Beam Update and Schedule

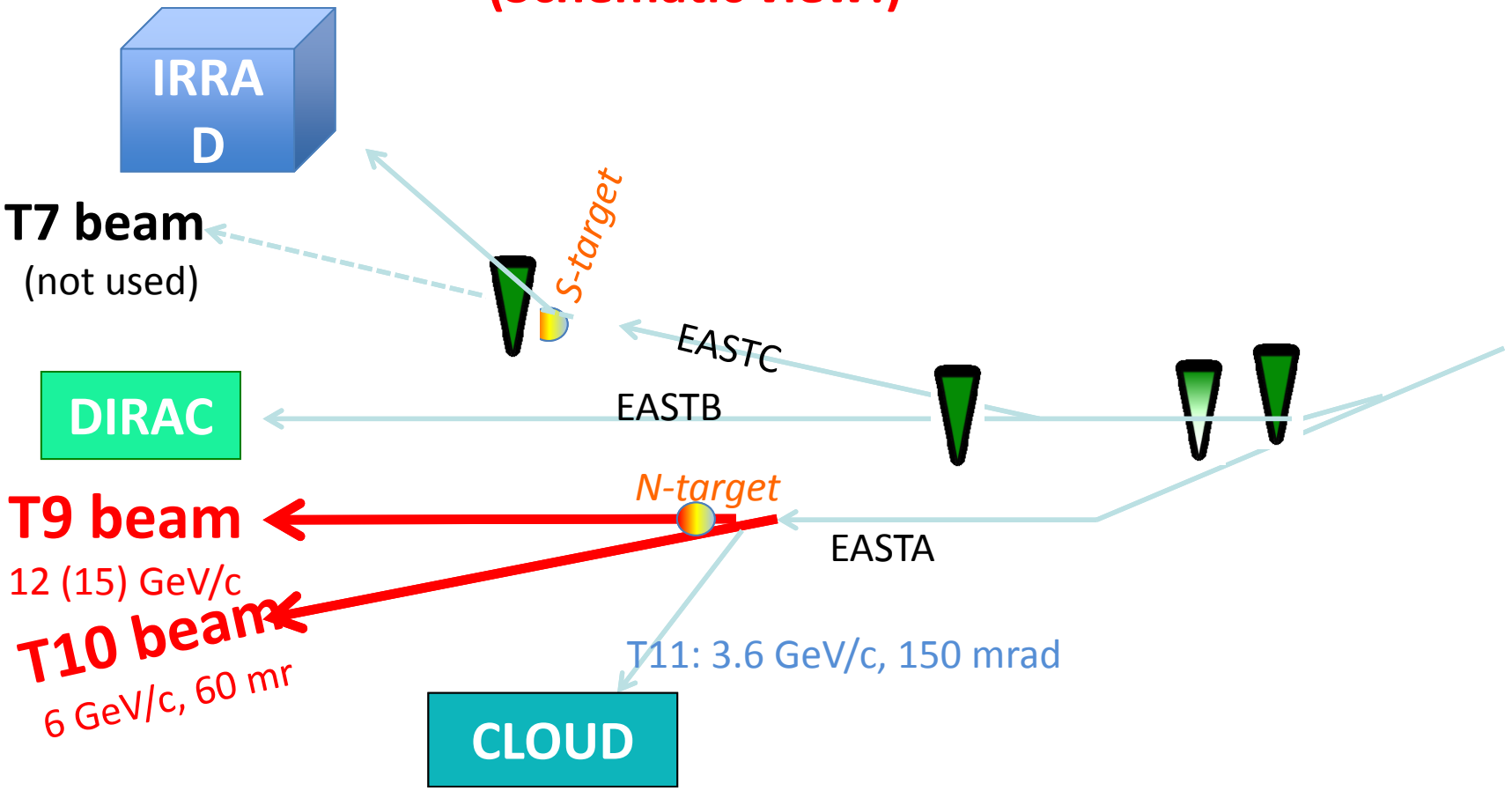
- 2011 Users at PS Testbeams : ~ 20 Groups
- 2011 Users at SPS Testbeams : ~ 50 Groups
- 2011 Users at Irradiation Facility : ~ 15 Groups

Beam Facilities at CERN



The East Area Beams

(Schematic view!)




Apron
Bdg 157
RBCB
TRANSIT AREA
ASSEMBLY AREA
ALICE
ATLAS
CMS
LHC
DIRAC
PORTE 19
PORTE 17
IL 5 N-9
st Hall of PS

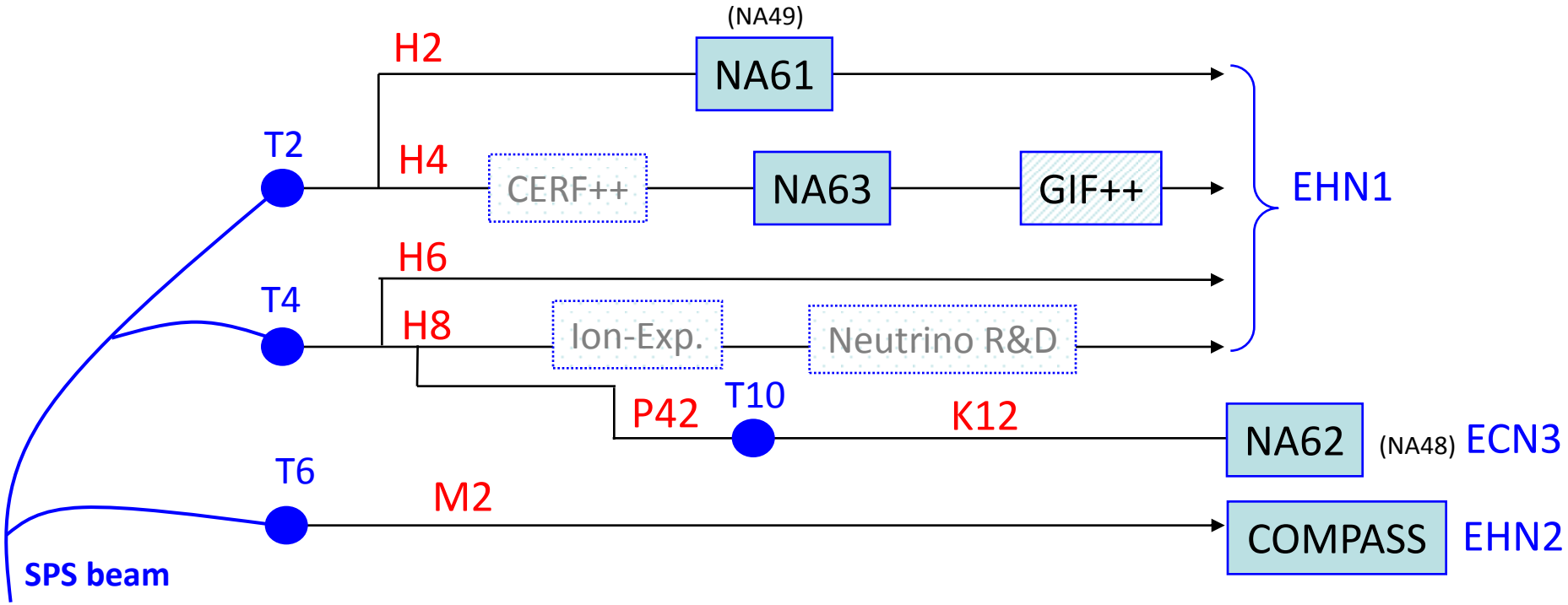
Line	Momentum range	Momentum resolution	Particles	Nominal Intensity (*)	Intensity range (relative)	Remarks
T7	1-10 GeV/c (±)	0.4%	mixed	0.3 -1.0*10 ^{6}	~1.0*10 $^{-3}$ -5	not used in 2011
T8	24 GeV/c	0.015%	protons	5-20*10 ^{10}	from MCR	primary
T9	1-15 GeV/c (±)	0.6%	mixed	0.3 -1.0*1 0^{6}	~0.02 -6	
T10	1-7 GeV/c (±)	0.5%	mixed	0.3 -1.0*10 ^{6}	~0.02 -4	
T11	1-3.6 GeV/c (±)	~1%	mixed	0.3 -1.0*10 ^{6}	~0.02 -5	
Irrad1	24 GeV/c	0.015%	proton	8-30*10 ^{10}	from MCR	primary
Irrad2	several MeV	unselected	neutrons			depends on T8

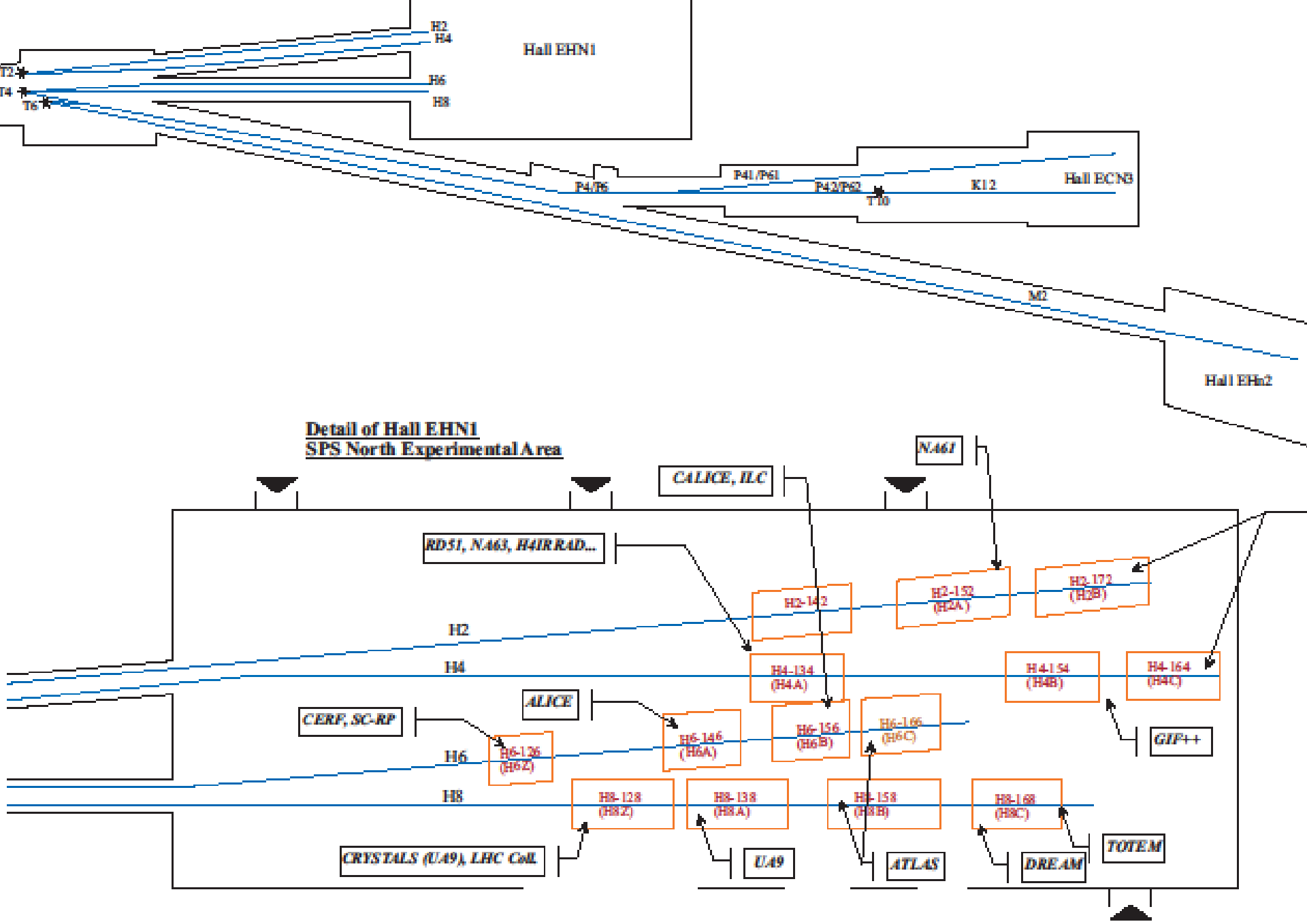
*) Intensity is for 1% momentum bite, nominal target and 2.10^{11} ppp on target and intensity collimator(s) wide opened.

- Spill 400 ms (could be > 500 ms at 20 GeV/c)
- Some more intensity control exists for the primary beam (0.5-1.0) and via the target efficiency (~0.02-1.0).

The North Experimental Areas at the SPS

- The SPS proton beam (400 GeV/c) slowly extracted to North Area
- Directed towards the three North Area primary targets **T2**, **T4** and **T6**




H2
H4
H6
H8
T2
T4
T6
Hall EHN1
P41/P61
P42/P62
P4/P6
T10
K12
Hall ECN3
M2
Hall EHn2
Detail of Hall EHN1
SPS North Experimental Area
CALICE, ILC
NA61
RD51, NA63, H4IRRAD...
H2-142
H2-152
(H2A)
H2-172
(H2B)
H4-134
(H4A)
H4-154
(H4B)
H4-164
(H4C)
ALICE
CERF, SC-RF
H6-126
(H6Z)
H6-146
(H6A)
H6-156
(H6B)
H6-166
(H6C)
GIF++
H8-128
(H8Z)
H8-138
(H8A)
H8-158
(H8B)
H8-168
(H8C)
CRYSTALS (UA9), LHC Coll.
UA9
ATLAS
DREAM
TOTEM

Performance of the EHN1 beams

Beam Line	p_{max} (GeV/c)	Intensity/pulse for 10^{12} ppp incident	Beam type
H2	400	9 10^7 π^+ at 200 GeV/c 3 10^7 π^- at 200 GeV/c 4 10^6 $e^\pm$ at 150 GeV/c 1 10^5 Pb at 400 GeV/Z	High-energy hadron or electron beam for physics or tests *) Heavy ion beam
H4	400	9 10^7 π^+ at 200 GeV/c 3 10^7 π^- at 200 GeV/c 4 10^6 $e^\pm$ at 150 GeV/c > 10^7 p at 400 GeV/c 1 10^5 Pb at 400 GeV/Z	High-energy hadron or electron beam for physics or tests, Att. proton beam Heavy ion beam
H6	200	1 10^8 π^+ at 150 GeV/c 4 10^7 π^- at 150 GeV/c	Medium energy hadron beam, also for tertiary test beams
H8	400	1 10^7 p at 400 GeV/c 2 10^8 π^+ at 200 GeV/c 7 10^7 π^- at 200 GeV/c 1 10^5 Pb at 400 GeV/Z	Att. proton beam High-energy hadron or electron beam for physics or tests, *) Heavy ion beam

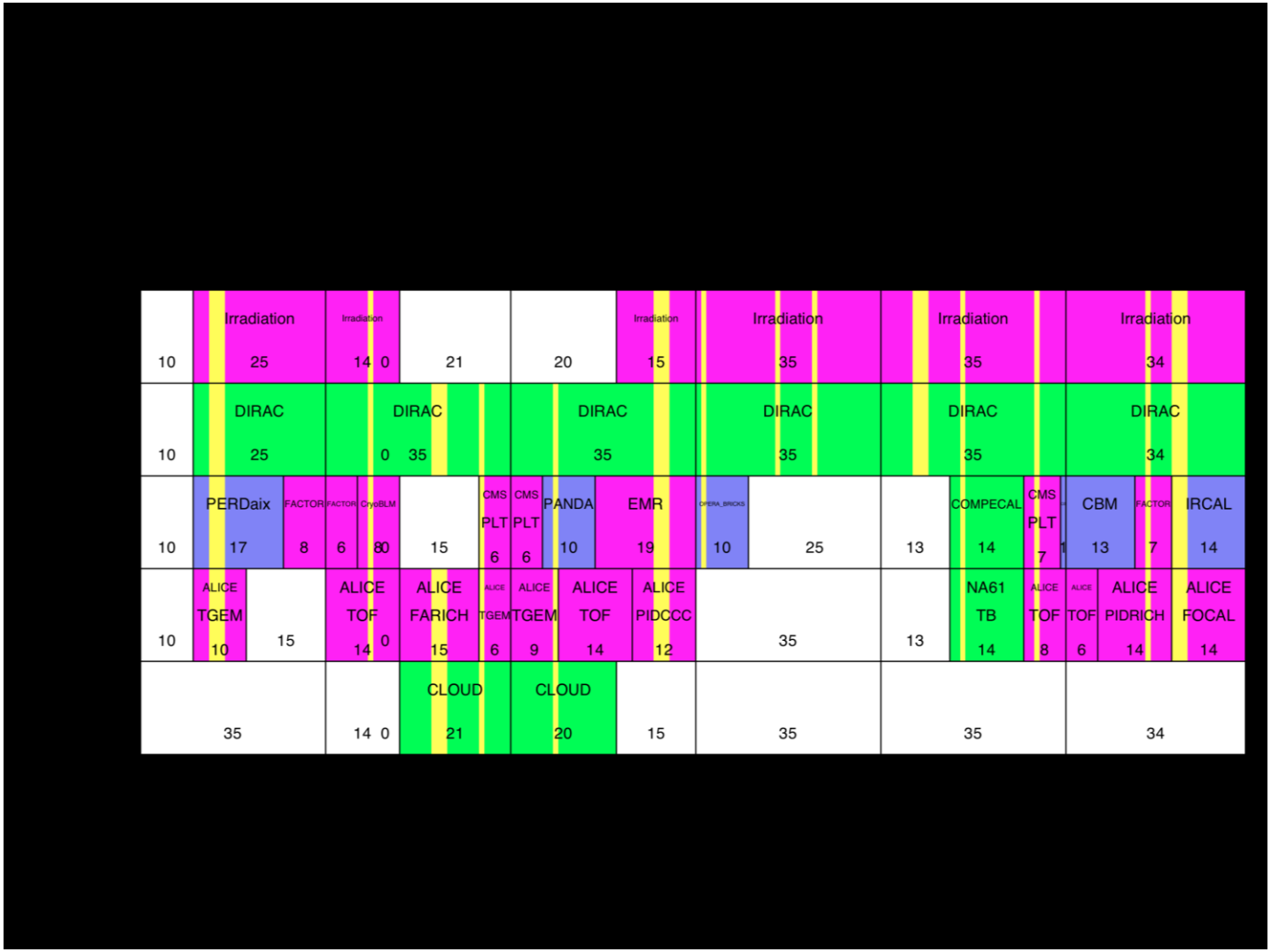
Performance of the EHN1 beams

Beam Line	p_{max} (GeV/c)	Intensity/pulse for 10^{12} ppp incident	Beam type
H2	400	9 10^7 π^+ at 200 GeV/c 3 10^7 π^- at 200 GeV/c 4 10^6 $e^\pm$ at 150 GeV/c 1 10^5 Pb at 400 G…	High-energy … beam …
H4	400	9 10^7 π^+ at … 3 10^7 …	…eam
…	…	…	…am energy hadron beam, also for tertiary test beams
…	…	…00 GeV/c … at 200 GeV/c … 10^7 π^- at 200 GeV/c 1 10^5 Pb at 400 GeV/Z	Att. proton beam High-energy hadron or electron beam for physics or tests, *) Heavy ion beam

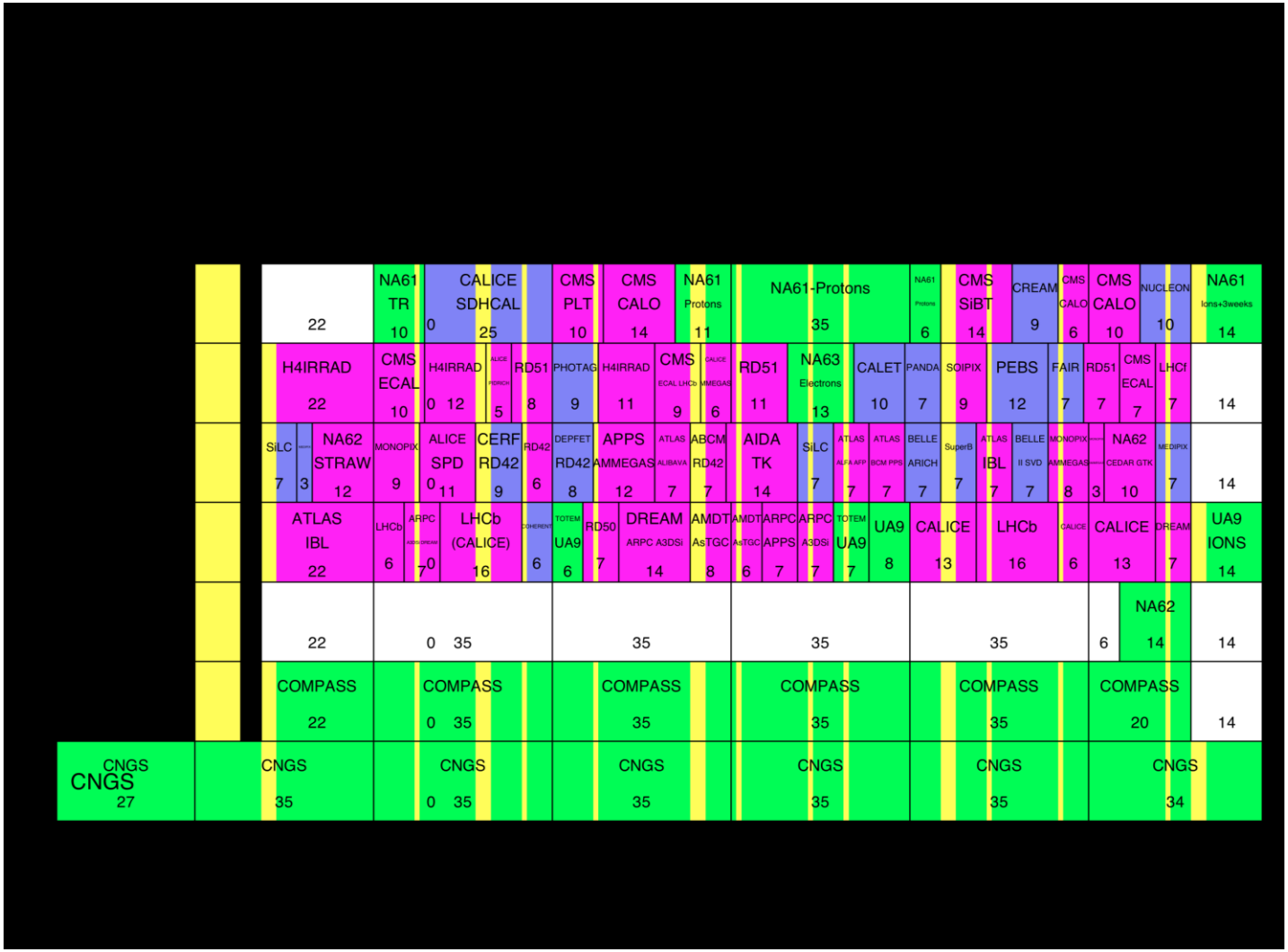
A lot of people at CERN work hard to ensure excellent conditions for test beam users! E.g.

People: Liaison physicists for North Area (EHN1): I. Efthymiopoulos and E. Gschwendtner (H6), East Hall and EHN2, ECN3: L. Gatignon, CNGS: E. Gschwendtner - PH Division Safety Officer Ch. Griggs - CERN safety officers - PS/SPS coordinator: H. Breuker

First PS User Schedule 2011



First SPS User Schedule 2011



Unofficial Schedule

- Information on 2011 schedule:
  - http://spsschedule.web.cern.ch/SPSschedule/pindex.html
- Beams available (>2013 consulting crystal ball):
- 2011 : begin May to mid November
- 2012 : begin May to mid November
- 2013 : no beams at all at CERN
- 2014 : maybe PS beams restart
- 2015 : begin May to mid November