

Now this is not the end.

**It is not even the beginning of
the end.**

**But it is, perhaps, the end of
the beginning.**





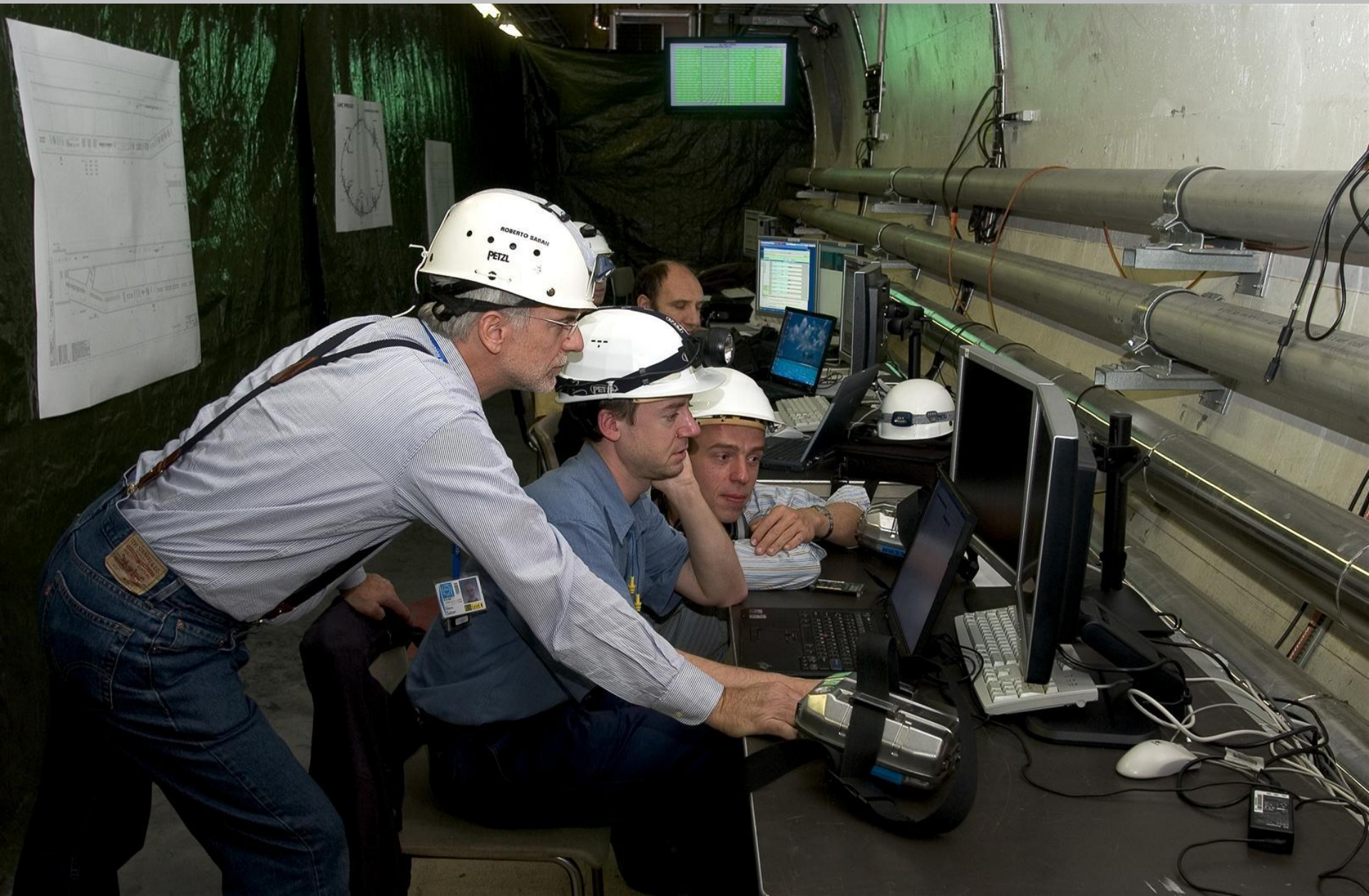
TT40 – 2004
Old SPS/LEP control room







New control room



Underground control room



RPHGA.UA83.RQ8.L8B1	RPMBB.UA83.RSF1.A78B2	RPLB.UA83.RCBCH5.L8B1	RPMBB.UA83.RQT13.L8B2
RPLB.UA83.RC0X3.L8	RPLB.UJ83.RCBCH9.L8B1	RPMBB.UA83.RQTD.A78B1	RPLB.UA83.RCBCV5.L8B2
RPMBB.UA83.RCBXV3.L8	RPHE.UA83.RQF.A78	RPLB.UA83.RCBCV5.L8B2	RPMBB.UA83.RQTL11.L8B2
RPMBB.UA83.RQTL11.L8B1	RPHGA.UA83.RQ7.L8B1	RPLB.UA83.RC0.A78B2	RPMBB.UA83.RCBXV1.L8
RPLB.UA83.RCBYHS4.L8B1	RPLB.UA83.RCBYVS4.L8B2	RPMBB.UA83.RSD2.A78B2	RPHGB.UA83.RQ5.L8B2
RPLB.UA83.RCBYH4.L8B2	RPLB.UA83.RCBCV6.L8B1	RPLB.UA83.RC0.A78B1	RPHF.UA83.RQX.L8
RPLB.UA83.RCBCH5.L8B2	RPLB.UJ83.RCBCV7.L8B2	RPMBB.UA83.RQ5.L8B1	RPLB.UA83.RCBCH6.L8B2
RPHF.UA83.RD2.L8	RPMBB.UA83.RCSX3.L8	RPHH.UA83.RQ4.L8B2	RPLB.UJ83.RCBCH10.L8B2
RPMBB.UA83.RCS.A78B2	RPHGB.UA83.RQ5.L8B1	RPMBB.UA83.RCBXH3.L8	RPMBB.UA83.RQTD.A78B2
RPLB.UJ83.RCBCV9.L8B2	RPLB.UA83.RCTX3.L8	RPMBB.UA83.RCBXH1.L8	RPMBB.UA83.RCBXV2.L8
RPLB.UA83.RC0SX3.L8	RPHGA.UA83.RQ9.L8B2	RPMBB.UA83.RCBXH2.L8	RPLB.UA83.RCBCV5.L8B1
RPLB.UA83.RCSX3.L8	RPLB.UJ83.RCBCH7.L8B1	RPHGB.UA83.RQ6.L8B1	RPMBB.UA83.RTQX1.L8
RPLB.UJ83.RCBCV10.L8B1	RPHGA.UA83.RQ7.L8B2	RPMBB.UA83.RQT13.L8B1	RPHH.UA83.RQ4.L8B1
RPHGA.UA83.RQ10.L8B2	RPMBB.UA83.RCS.A78B1	RPMBB.UA83.RSF2.A78B2	RPMBB.UA83.RQT12.L8B2
RPHGA.UA83.RQ10.L8B1	RPLB.UA83.RCBYVS4.L8B1	RPMBB.UA83.RSD1.A78B1	RPHGA.UA83.RQ9.L8B1
RPHGB.UA83.RQ6.L8B2	RPHF.UA83.RD1.L8	RPLB.UJ83.RCBCH8.L8B2	RPMBB.UA83.RCD.A78B2
RPMBB.UA83.RSD1.A78B2	RPLB.UJ83.RCBCV8.L8B1	RPMBB.UA83.RSF1.A78B1	RPMBB.UA83.RSF2.A78B1
RPMBB.UA83.RCD.A78B1	RPLB.UA83.RCBYV4.L8B1	RPMBB.UA83.RSD2.A78B1	RPHE.UA83.RQD.A78
RPLB.UA83.RCBCH5.L8B1	RPTE.UA83.RB.A78	RPMBB.UA83.RQTF.A78B1	RPLB.UA83.RCSSX3.L8
RPLB.UA83.RCBYHS4.L8B2	RPHGC.UA83.RTQX2.L8	RPMBB.UA83.RQT12.L8B1	RPHGA.UA83.RQ8.L8B2
	RPMBB.UA83.RQTF.A78B2		



Make it so they have to give us access to do a reset...



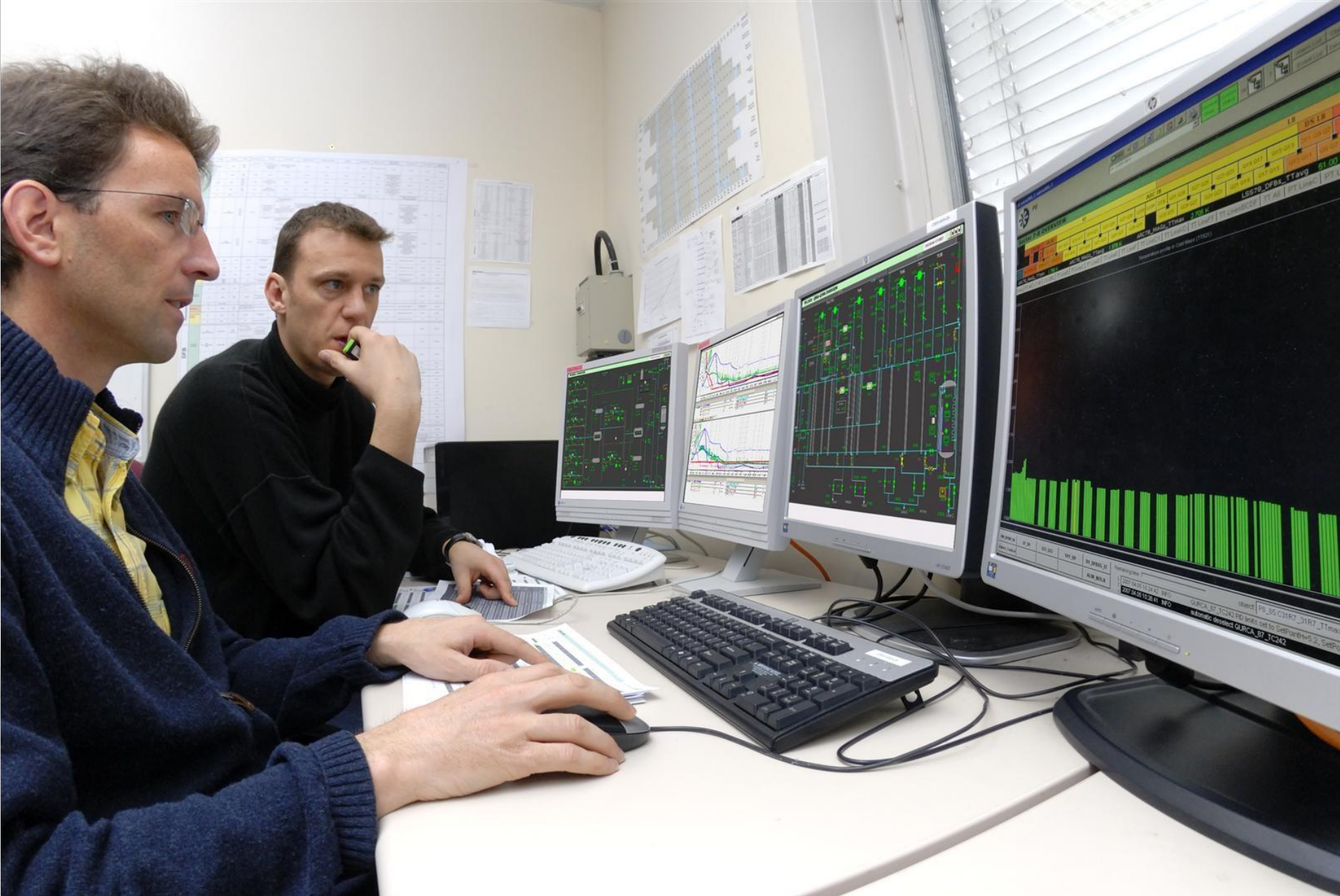
Hire some fresh
faced EICs



Get some smart people in to sort the beam out in the injectors



1.9 K for the first time



First sector cold









Sector test



Julian – it doesn't work...



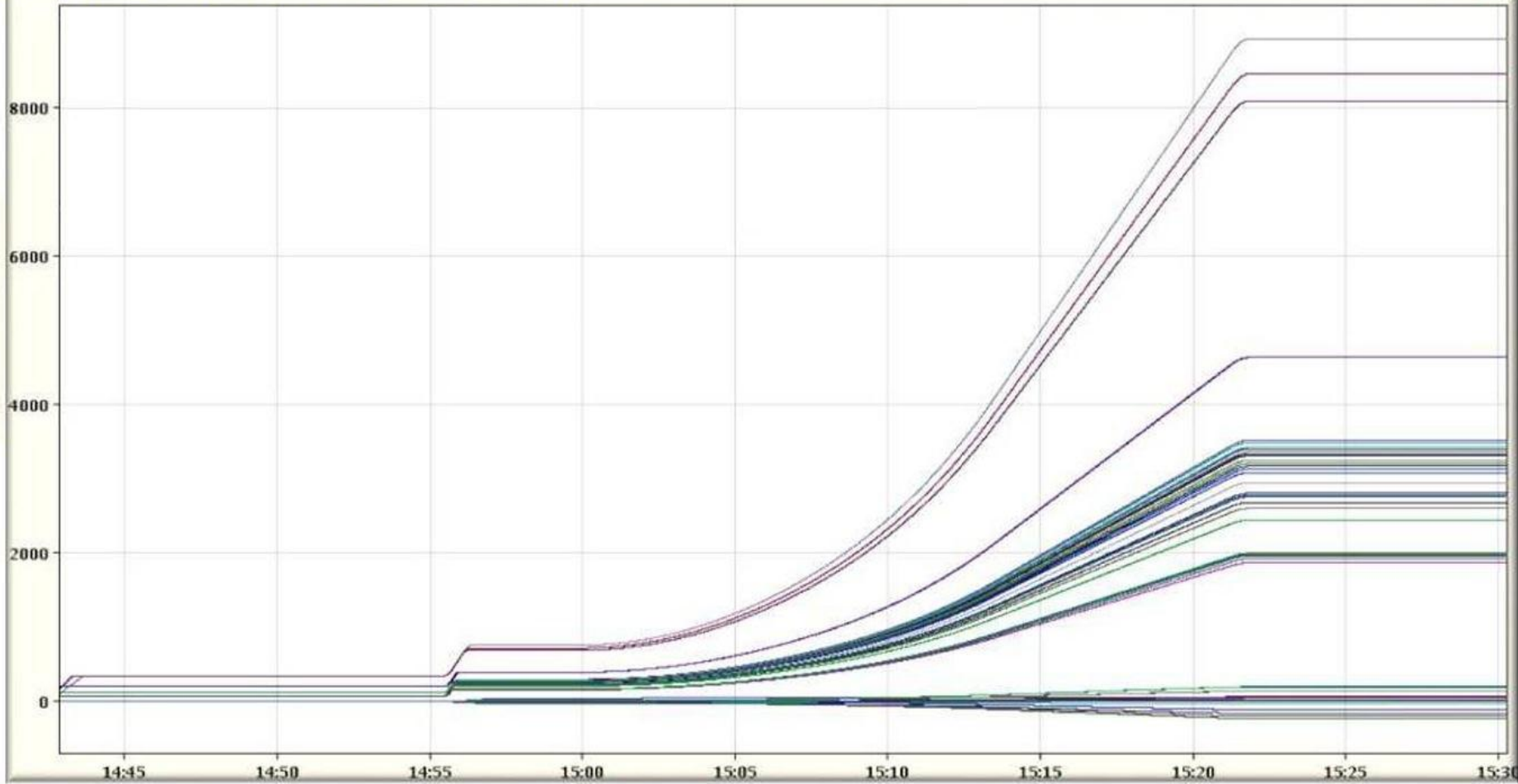
Management getting in the way

[Display the graphs on 1 column(s) for 10,000 points | Minimum graph width 150 px - height 150]

monitoring SUB_51 for 138 devices : RPM8B.UA47.RSD2.A45B1/SUB_51 ...

Close

Current [A]





September 10th



Fook off – get your own screen shot



Restart 2009



Rampin'



March 30th – second ramp lost

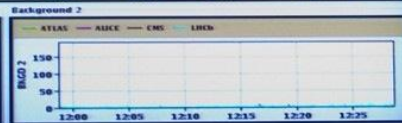
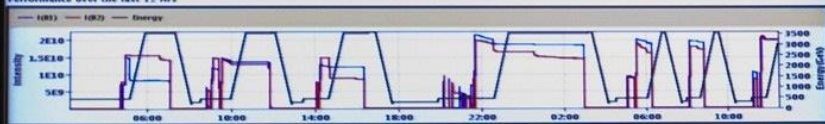


Shit – it was us

30-Mar-2010 12:28:46 Fill #: 1005 Energy: 2982.0 GeV I(B1): 2.00e+10 I(B2): 2.01e+10

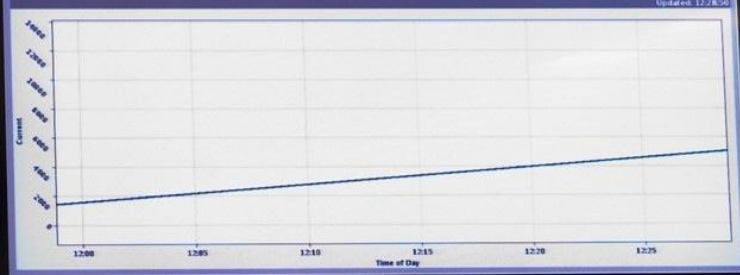
Experiment Status	ATLAS	ALICE	CMS	LHCb
Instantaneous Luminosity	1.746e-05	0.000e+00	1.621e-07	0.000e+00
BRAN Count Rate	2.987e+00	6.158e-02	2.166e-01	1.779e+00
BKGD 1	0.002	0.011	0.002	0.150
BKGD 2	0.000	0.000	0.000	0.373
BKGD 3	0.000	0.005	0.000	0.034

LHC# STANDBY Count(Hz): 0.000 LHCb VELO Position 200 Gap: 58.0 mm TOTEM: CALIBRATION



Monitoring set: S34-A34-RB 30 March, 2010, 12:28:49

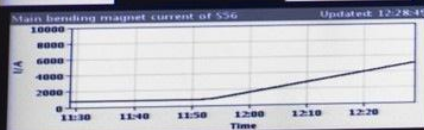
RB.A34 [5023 A] [2.97 TeV]



LHC Page1 Fill: 1005 E: 2986 GeV 30-03-2010 12:28:49

BEAM SETUP: RAMP

Energy: 2986 GeV I(B1): 1.82e+10 I(B2): 1.85e+10

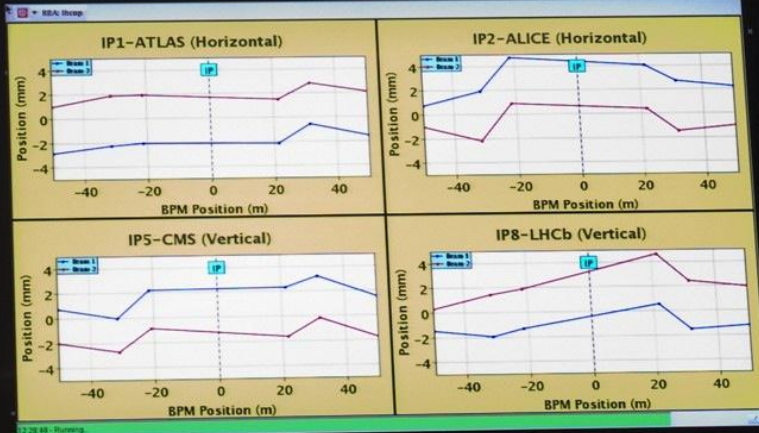


Comments 30-03-2010 11:52:19 :
Ramping again

BIS status and SMP flags	B1	B2
Link Status of Beam Permits	ENABLE	ENABLE
Global Beam Permit	true	true
Setup Beam	true	true
Beam Presence	true	true
Moveable Devices Allowed In	ENABLE	ENABLE
Stable Beams	ENABLE	ENABLE

PM Status B1: ENABLED PM Status B2: ENABLED

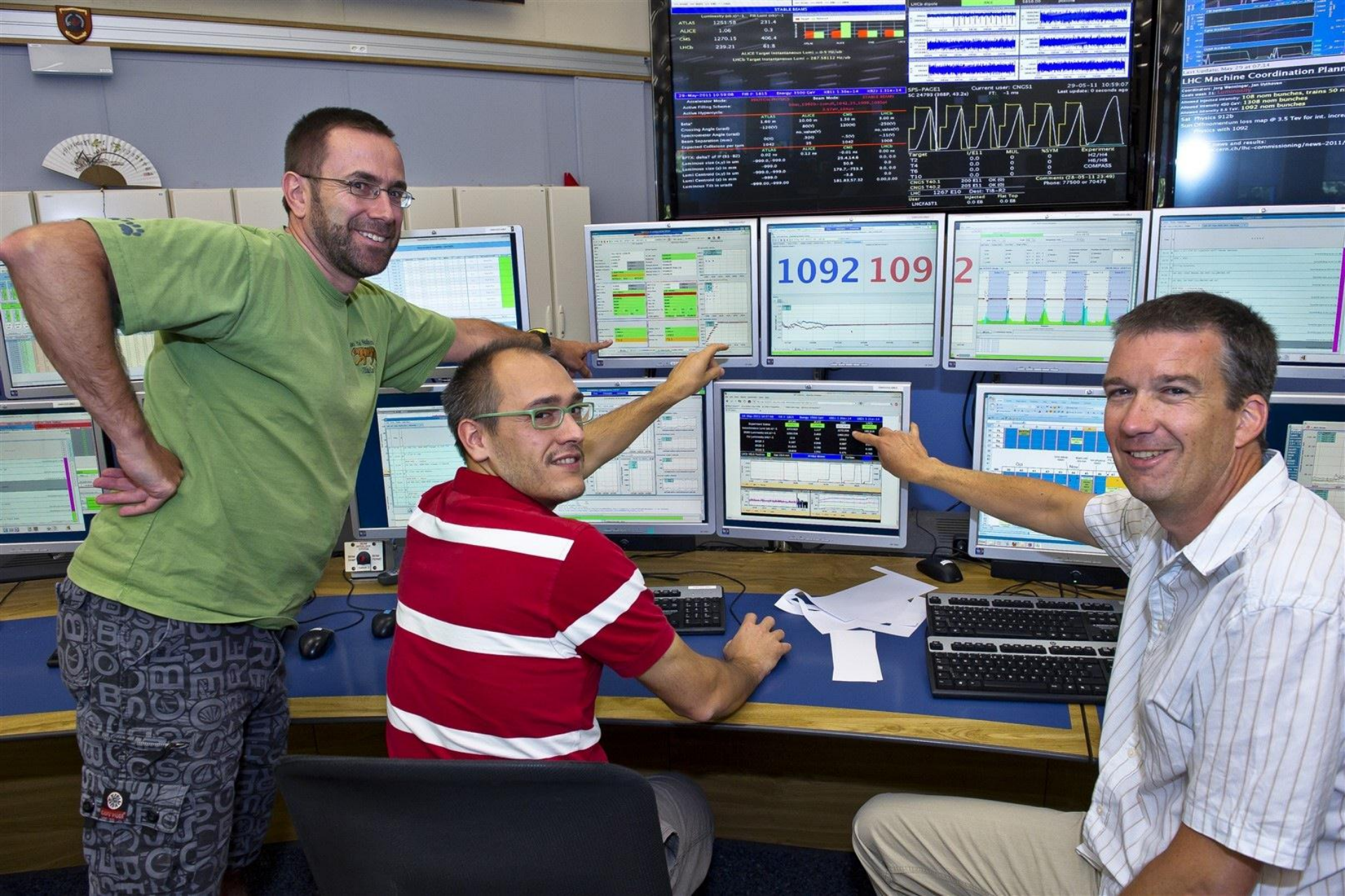
LHC Operation in CCC : 77600, 70480



12:28:49: Review



You lucky, lucky bastards!!!



Sunday 29 May 2011:

2 x 1092 bunches colliding, luminosity above 1.2×10^{33} , and a beam energy of 73 MJ.





We delivered 5.6 fb^{-1} to Atlas in 2011 and all we got was a blooming tee shirt



Ion Man



Markus ignoring Belinda Carlisle while Ghislain picks his nose



0.5 and 0.25 million dollar babies



To the entire LHC team
Congratulations and all our thanks for this splendid
achievement !

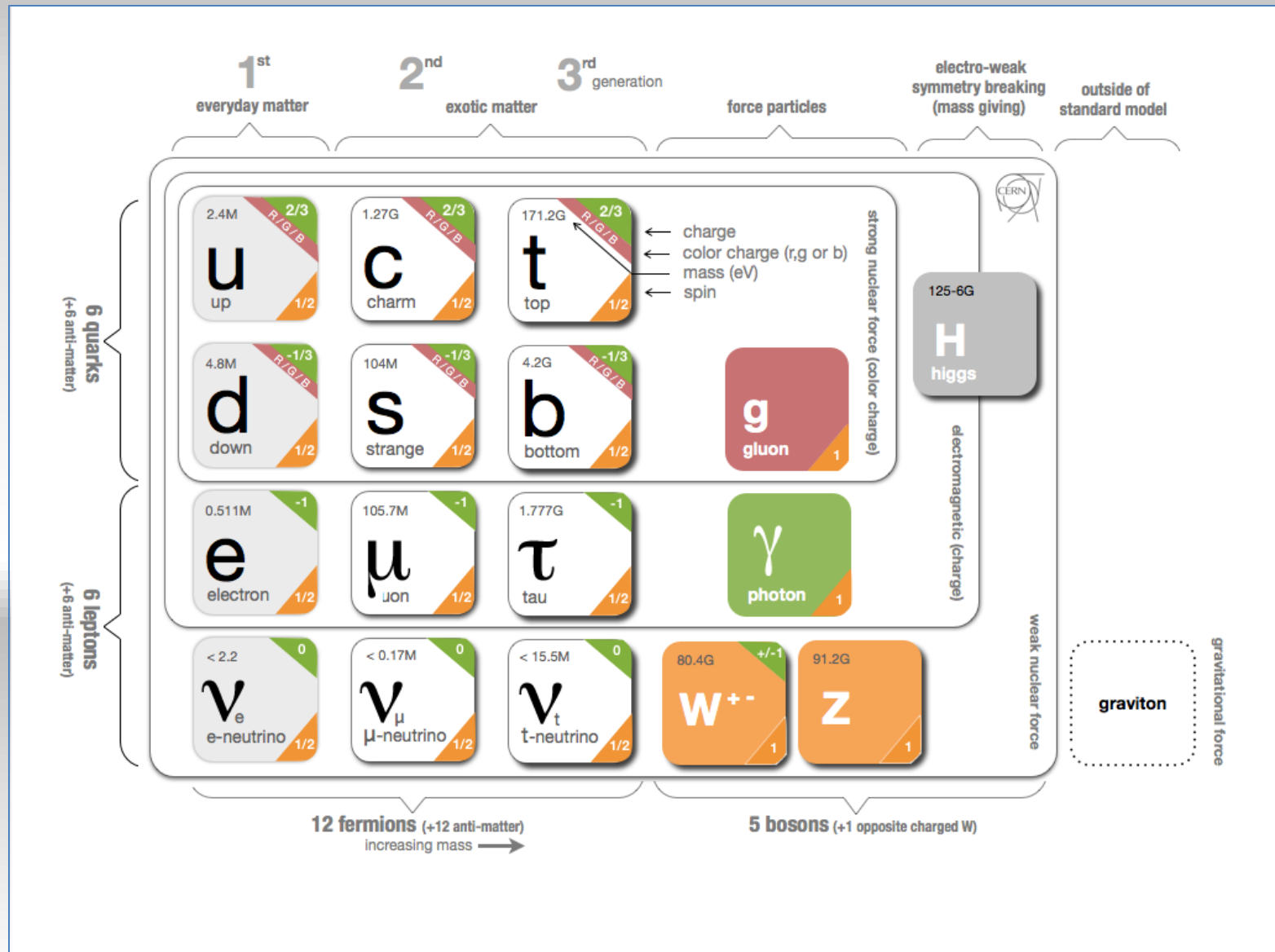
Shall I compare thee to a summer's day?
Thou art more lovely and more temperate.
Rough winds do shake the darling buds of May,
And summer's lease hath all too short a date.

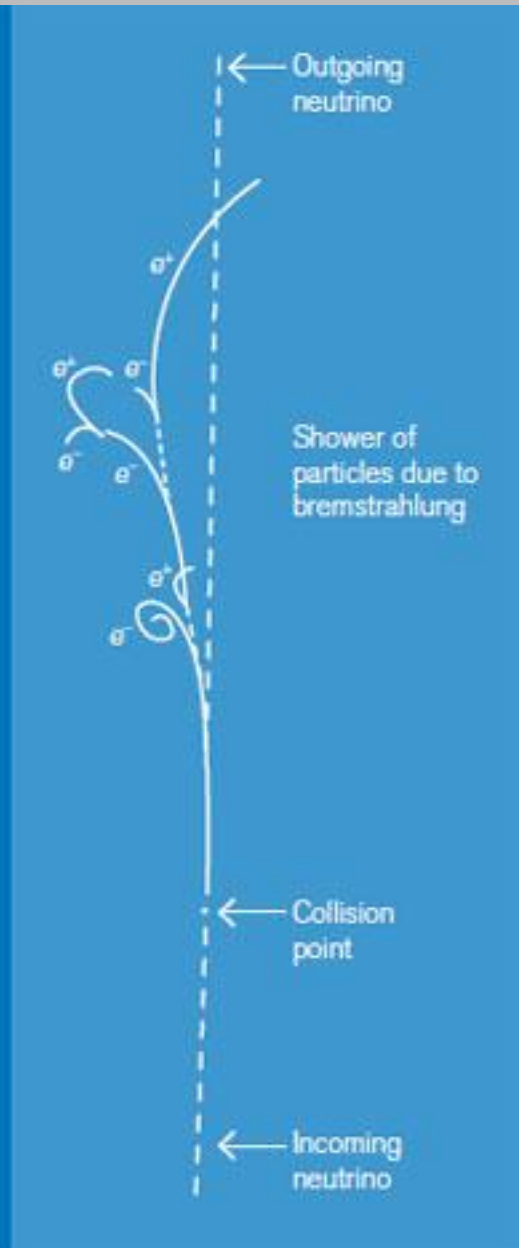
Sometime too hot the eye of heaven shines,
And often is his gold complexion dimmed;
And every fair from fair sometime declines,
By chance, or nature's changing course, untrimmed;

But thy eternal summer shall not fade,
Nor lose possession of that fair thou ow'st,
Nor shall death brag thou wand'rest in his shade,
When in eternal lines to Time thou grow'st.

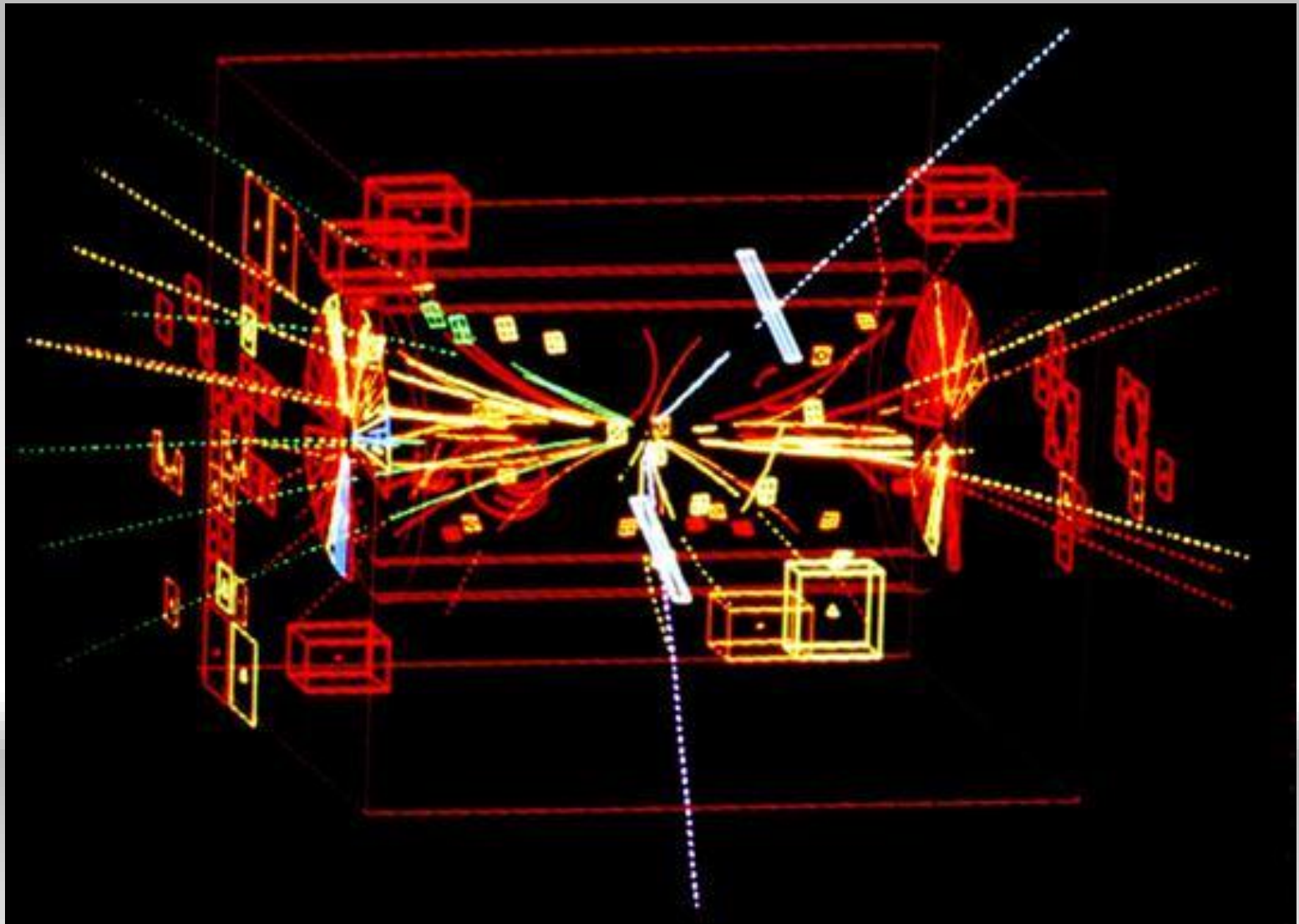
So long as men can breathe, or eyes can see,
So long lives this, and this gives life to thee.

The standard model





1974: discovery of weak neutral currents in Gargamelle/PS



1983: discovery of W^+ , W^- and Z^0 at the SPS



```
LEP Run 6032 data of:02-08-99 11:26:34
-**-** STABLE BEAMS **-
```

```
E = 100.010 GeV/c Beam      In Coast: 0.7
Beams          e+           e-
I(t)          uA          2040.6      2345.9
tau(t)        h           6.30       7.36
```

LUMINOSITIES	L3	ALEPH	OPAL	DELPHI
L(t) cm ⁻² s ⁻¹	53.5	51.7	55.6	45.0
/L(t) nb ⁻¹	11.5	11.8	8.7	12.2
Bkg 1	0.80	1.21	0.00	1.02
Bkg 2	0.86	0.53	0.96	2.28

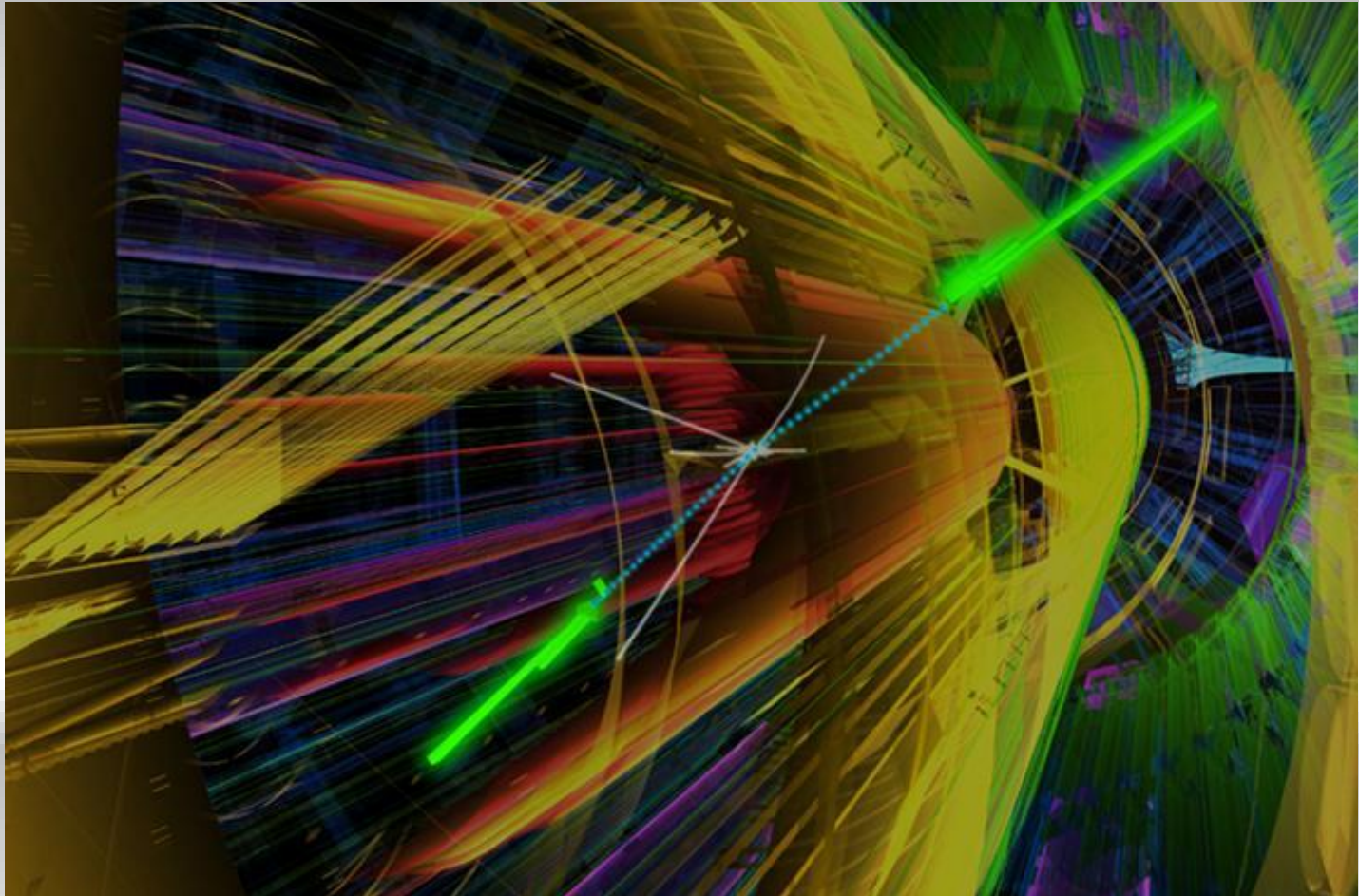
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COMMENTS 02-08-99 11:26
COLLIMATORS AT PHYSICS SETTINGS
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FIRST PHYSICS AT 100 GEV
WHAT ABOUT THAT???
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LEP

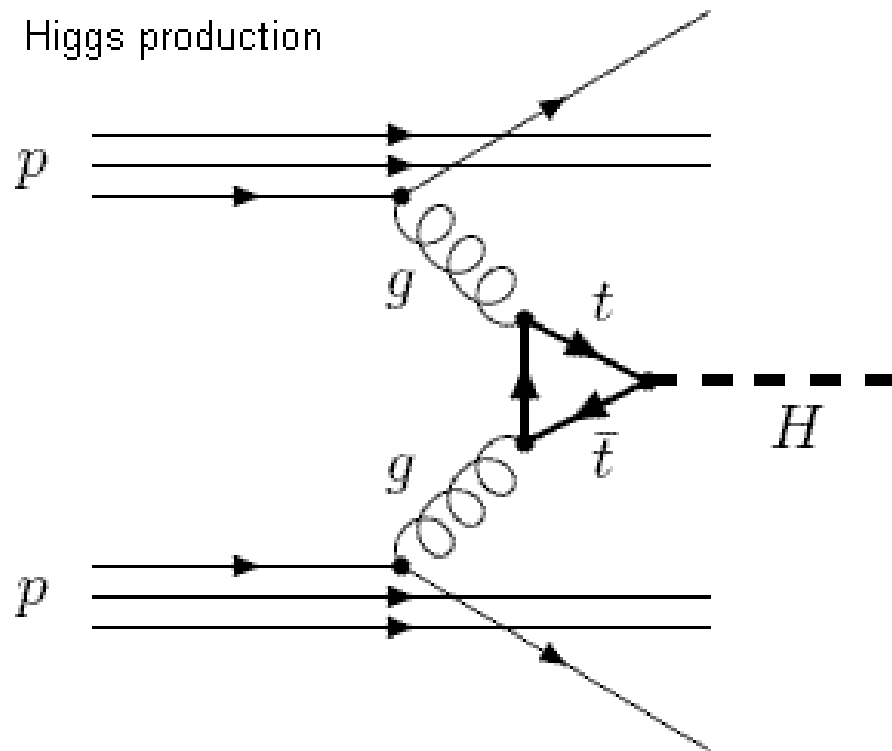
18 million Zs

80,000 Ws

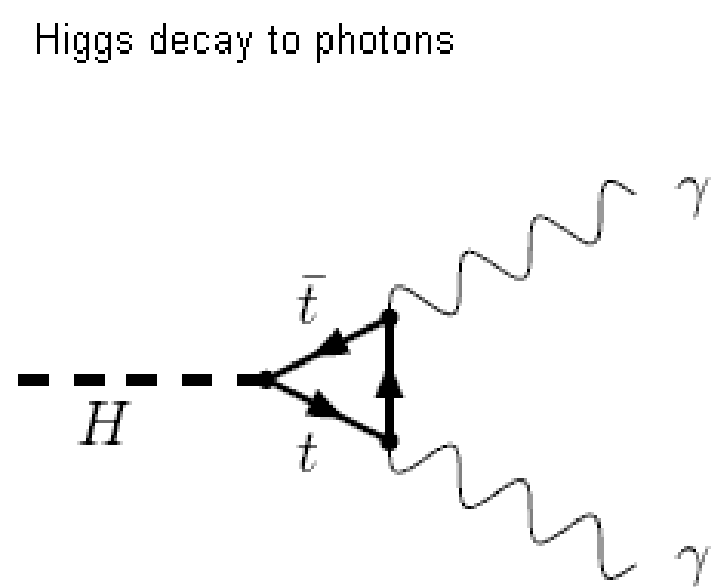


July 4th 2012: discovery of Higgs at the LHC

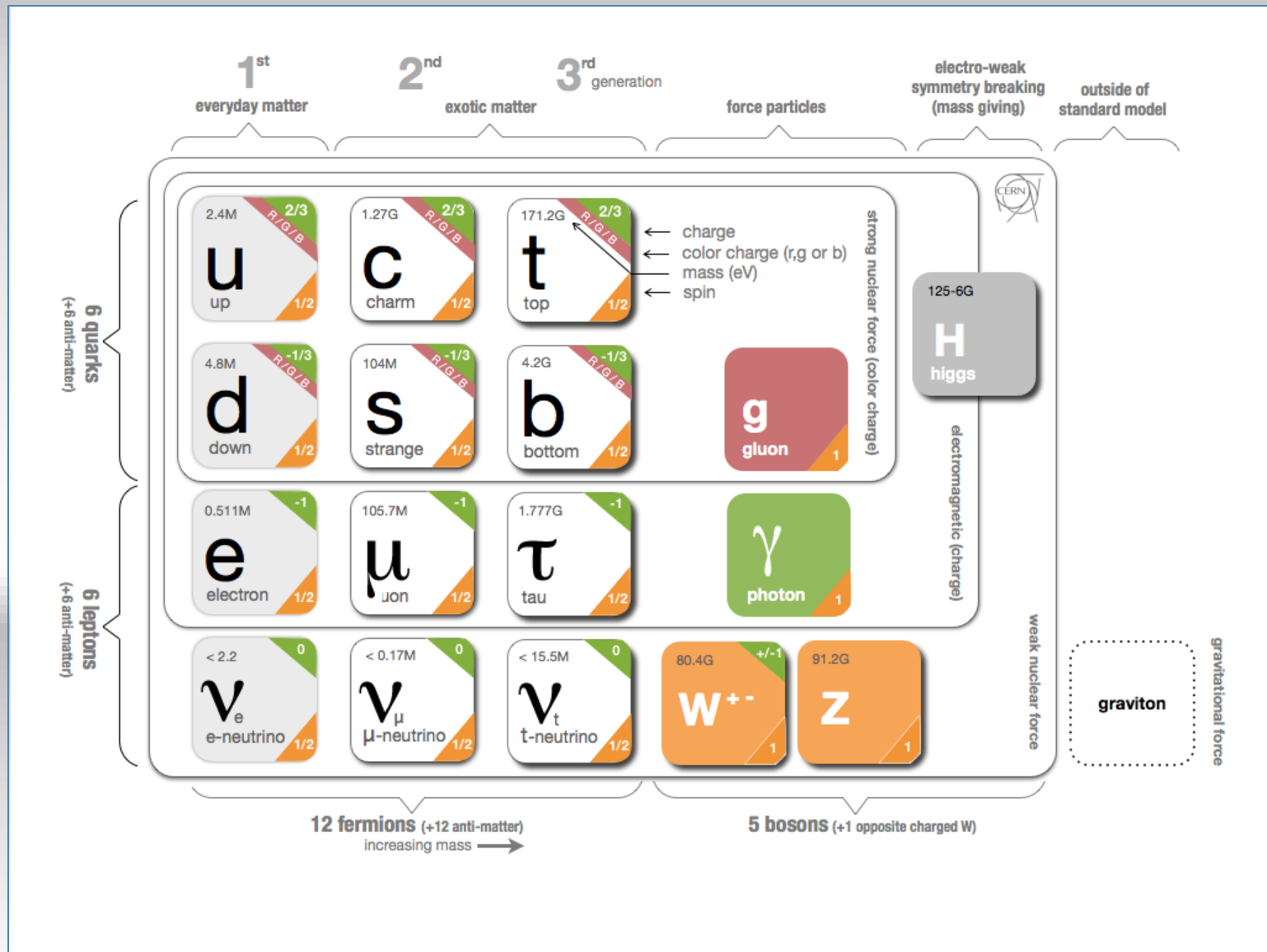
Higgs production



Higgs decay to photons



The standard model





and it is really fantastic!