

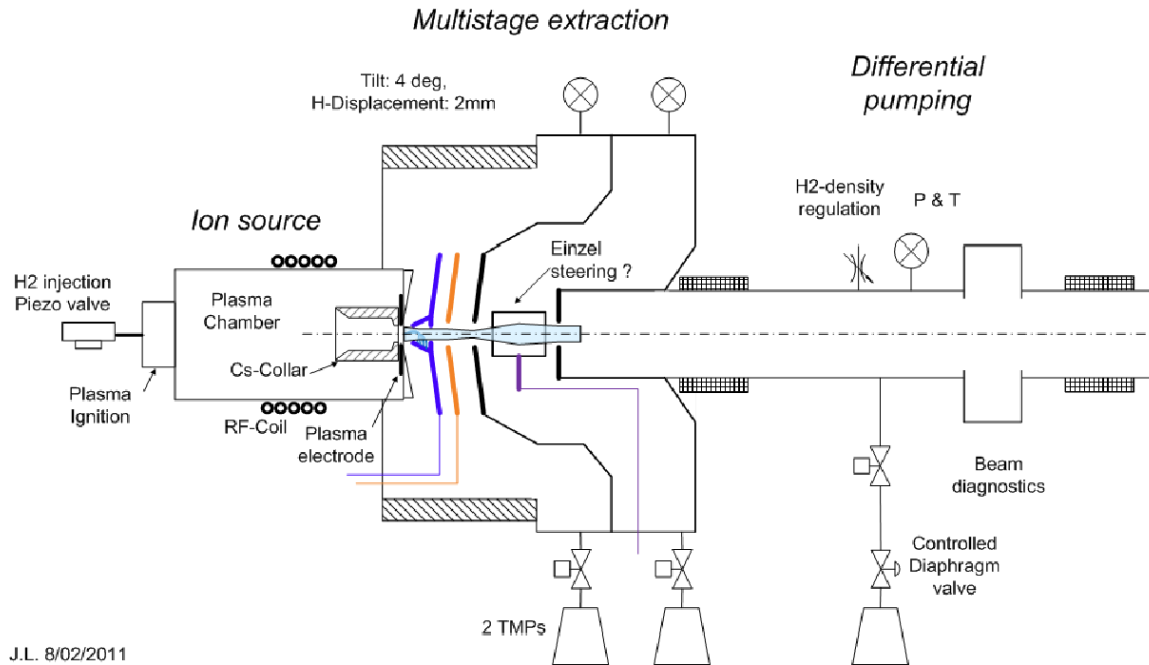


Design and Production of:

- New LINAC4 Front end Chamber
- New LINAC4 Faraday cage
- LEBT + Diagnostic Support for B357
- LINAC4 SPL Plasma generator + 2 Cesium oven
- Plasma Generator BNL
- Developments (2011 – 2014):
 New RF Plasma Generators



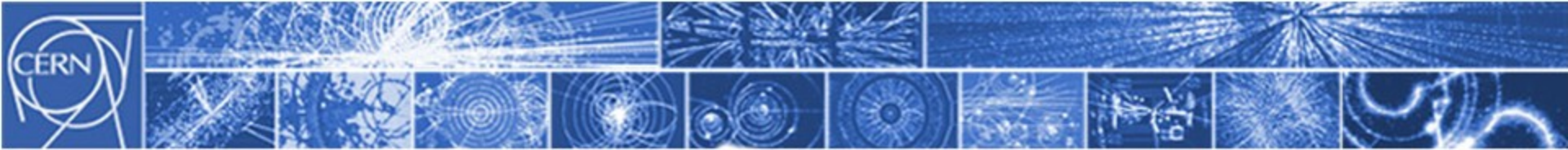
Diff. Pumping, Insulator, Tilt and alignment mechanism



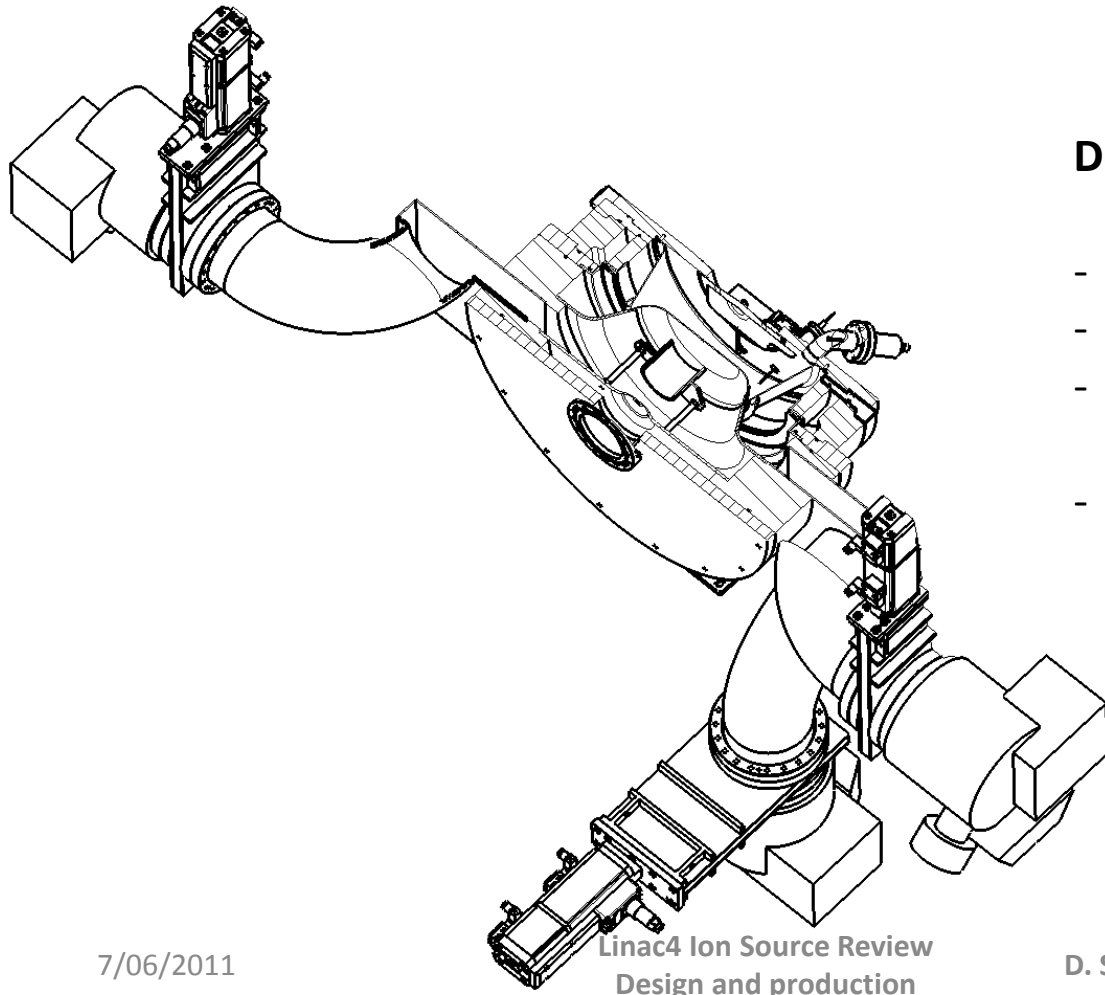
J.L. 8/02/2011
not to scale

1/20/2011 Ly

7

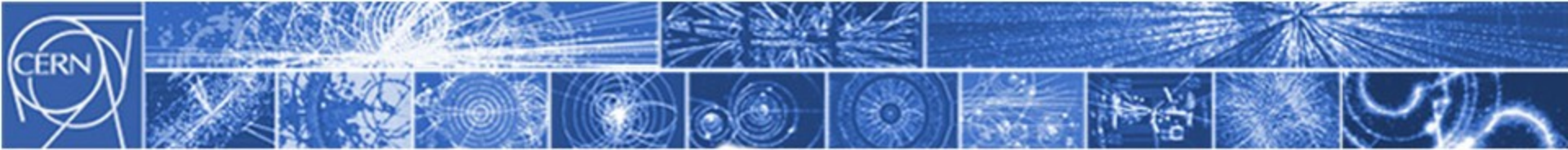


New LINAC4 Front end Chamber 2/4

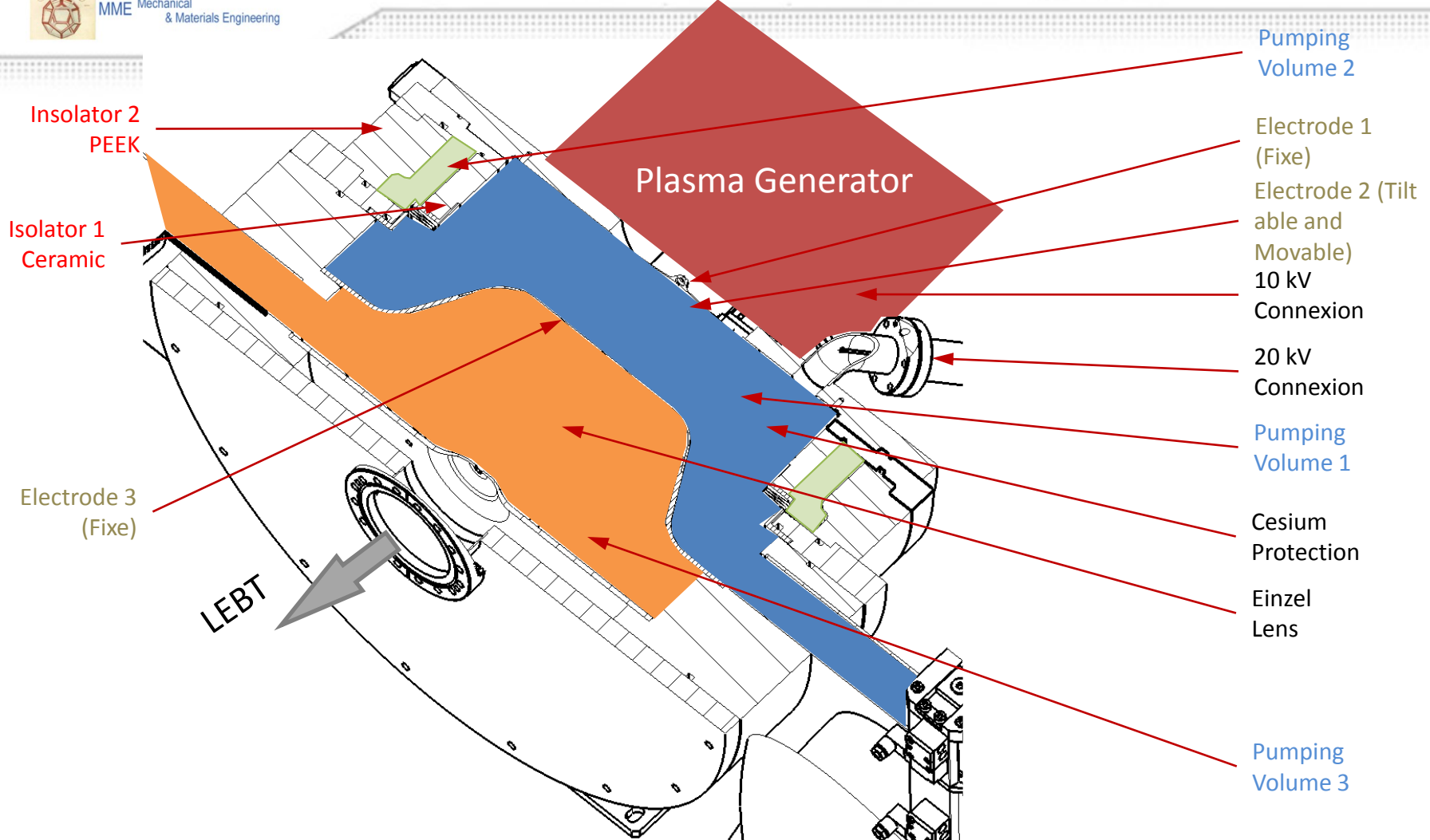


Design of new Front end Chamber

- Multi-stage Extraction
- Differential Pumping
- Tilt and Alignment System for Electrode 2
- Ceramic Insulator



New LINAC4 Front end Chamber 3/4

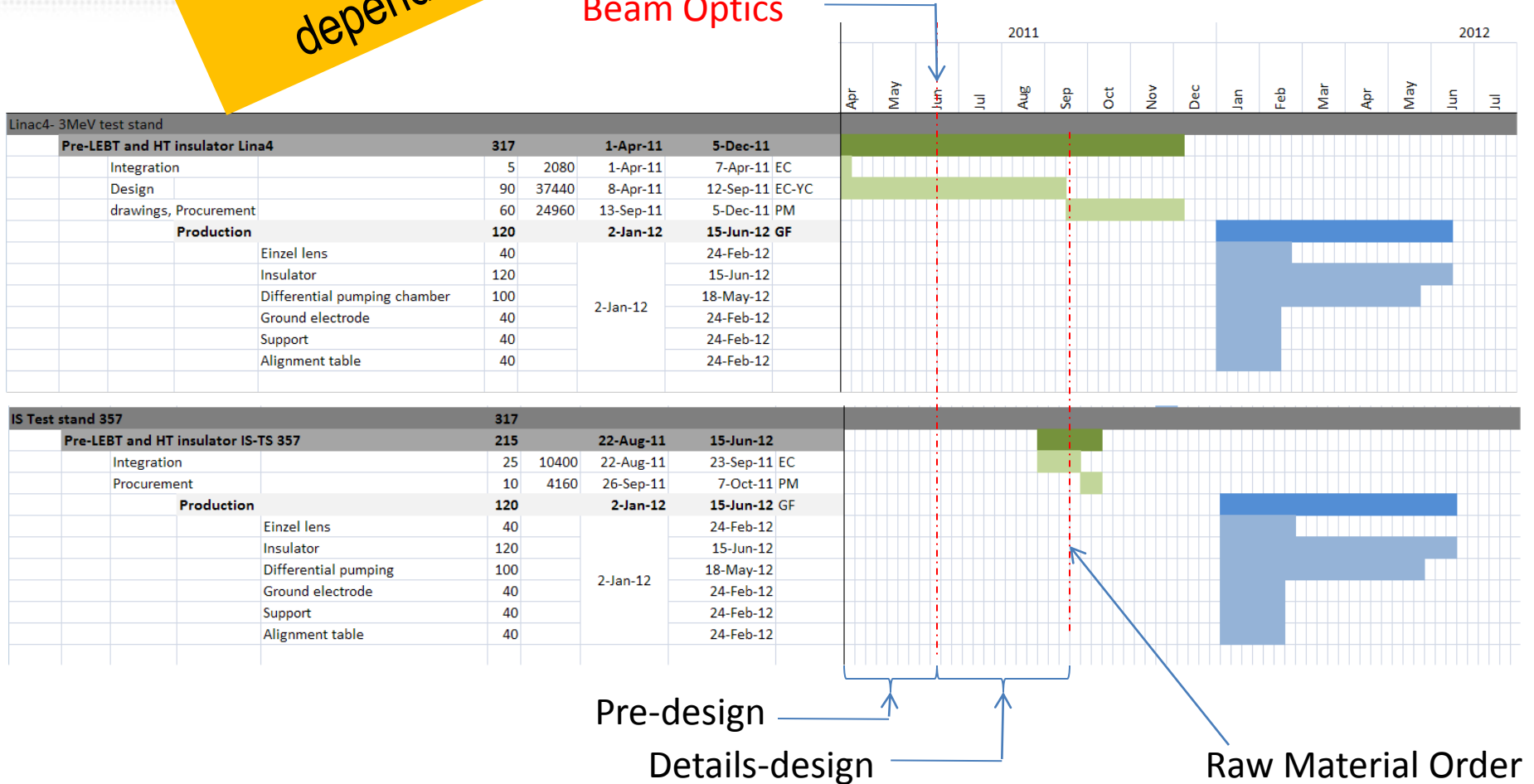




R&D Activity: tight but feasible depending on technical choices

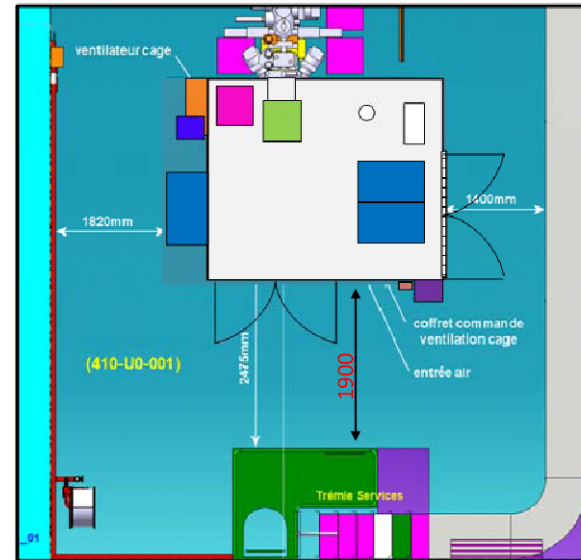
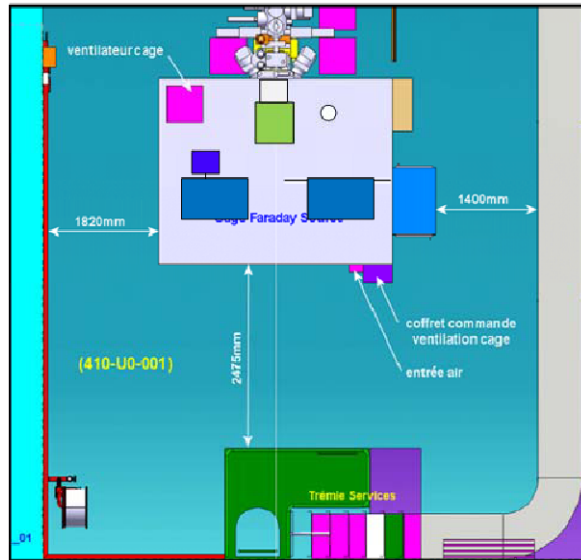
New LINAC4 Front end Chamber 4/4

Beam Optics



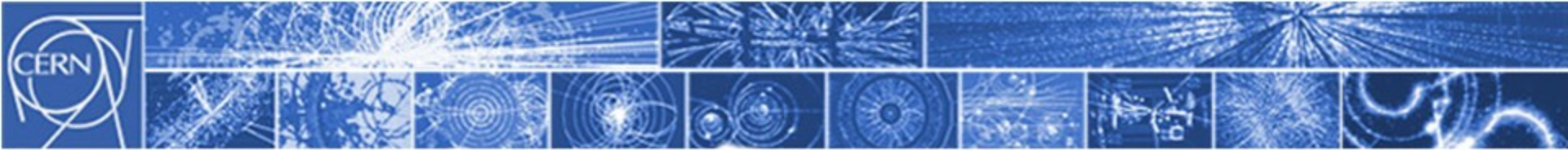


New LINAC4 Faraday cage 1/3

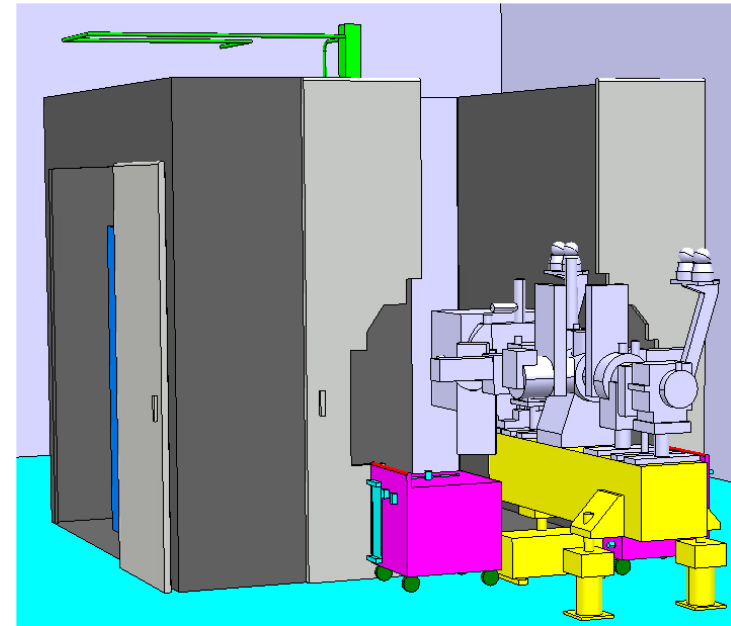
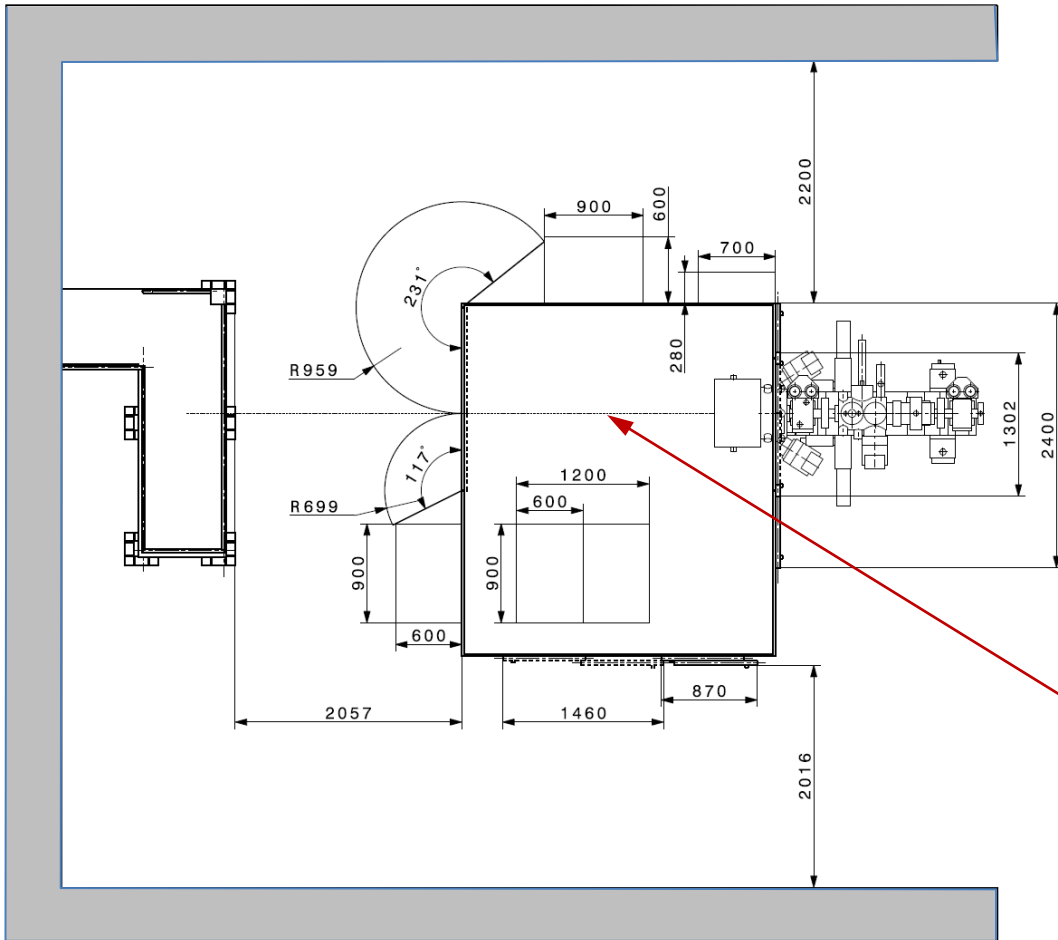


- Modify Faraday cage for longer extraction zone
- Move Racks and design cabling within a surface current equipotential
- H2 injection out of HT cage
- *Add manipulation light crane tbd.*
- Move RF insulation-transfo to the side
- Increase cage length by 50 cm

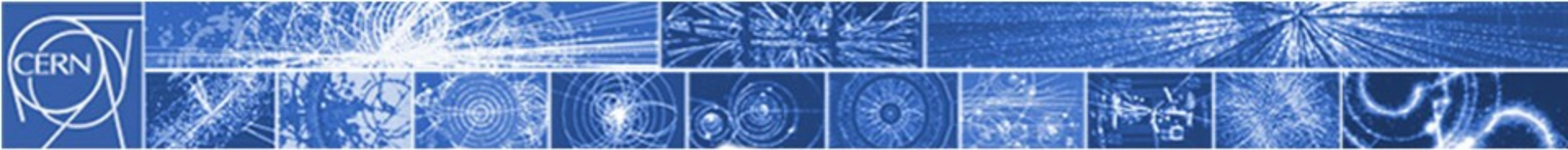
1/20/2011 Ly



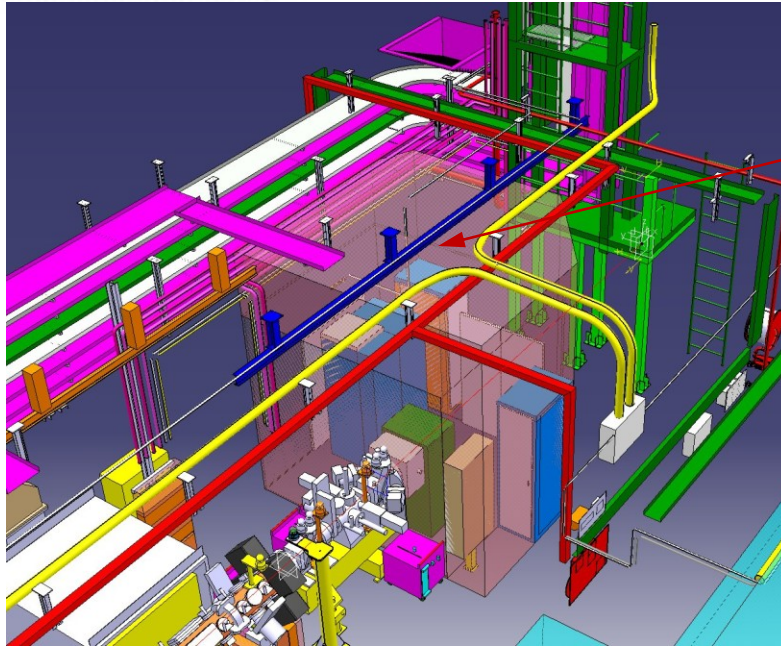
New LINAC4 Faraday cage 2/3



Lifting and manipulation systems
500 Kg

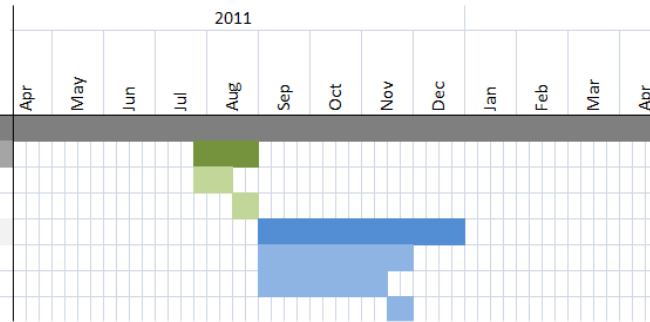


New LINAC4 Faraday cage 3/3



Lifting and manipulation systems
500 Kg

Linac4-tunnel					
	New Faraday cage Tunnel	113		25-Jul-11	2-Sep-11
	Design	20	8320	25-Jul-11	19-Aug-11 YC
	drawings, Procurement	10	4160	22-Aug-11	2-Sep-11 PM
	Production	83		5-Sep-11	28-Dec-11 GF
	Faraday cage	20		5-Sep-11	30-Nov-11
	Lifting and manipulation systems	30		5-Sep-11	14-Nov-11
	Installation	20		1-Dec-11	28-Dec-11



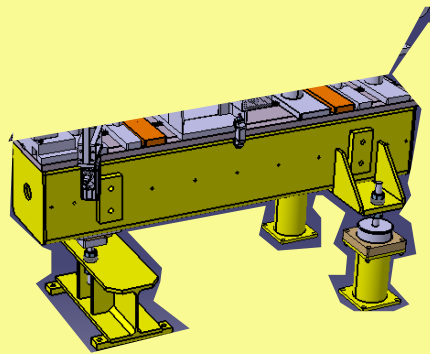


LEBT + Diagnostic Support for B357

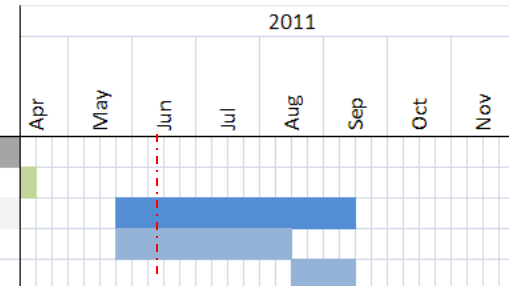
New LEBT Support:

- Design from LINAC4
- Delivery during the summer
- Installation in Sept. 2011

For Diagnostic Components see R.Scriven & U.Raich Presentation.



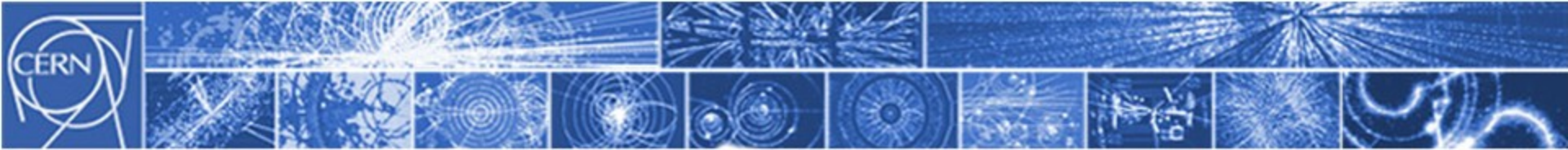
LEBT support					
Procurement	10	4160	1-Apr-11	14-Apr-11	PM
Production	50		24-May-11	14-Sep-11	
LEBT Support	40		24-May-11	15-Aug-11	GF
Installation	10		1-Sep-11	14-Sep-11	



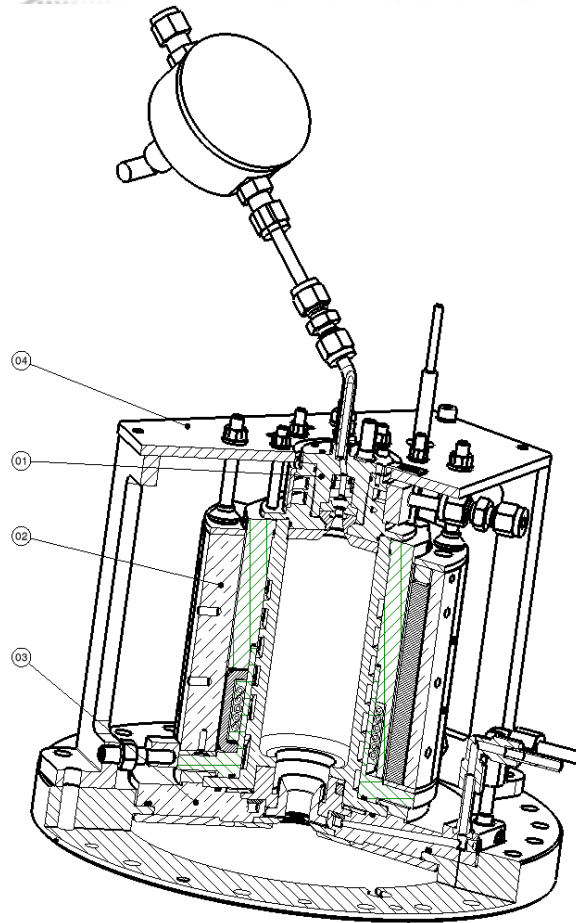


LEBT + Diagnostic Support for B357

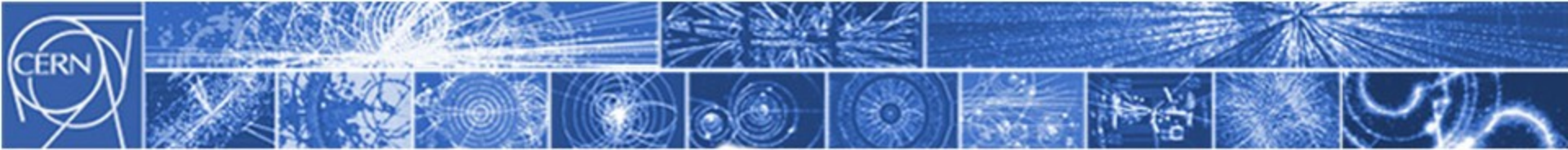
	Linac4			Source Test stand			Main Workshop production - comments
	Drawing Modifications required for Linac4	Qty for Linac4	Delivered to contact	New drawings required for Source Test Stand (b357)	# Source Test stand	Delivered to contact	
Solenoid	Yes	2	5/1/2012	Yes	2	7/1/2012	Feet, alignment arms, vacuum chamber
Steers				No	2	7/1/2012	Feet
Faraday Cup				No	1	6/1/2012	Yes
SEMGrid profile monitor				Yes (very small)	1	6/1/2012	Yes - Modifications to polarisation may impact on drawings
Diagnostic tank	Yes (modify old tank)	1	5/1/2012	Yes	1	6/1/2012	Yes
Pre-Chopper	Yes	1	5/1/2012	Yes	1	7/1/2012	Yes
Beam Current Transformer				No	1	6/1/2012	Yes
Ion Trapping electrodes	Yes	1	5/1/2012	Yes	1	7/1/2012	Yes
Emittance Meter				Yes (some)	1	4/1/2012	Yes - Modification of slit actuators
Girder				No	1		Yes - already launched



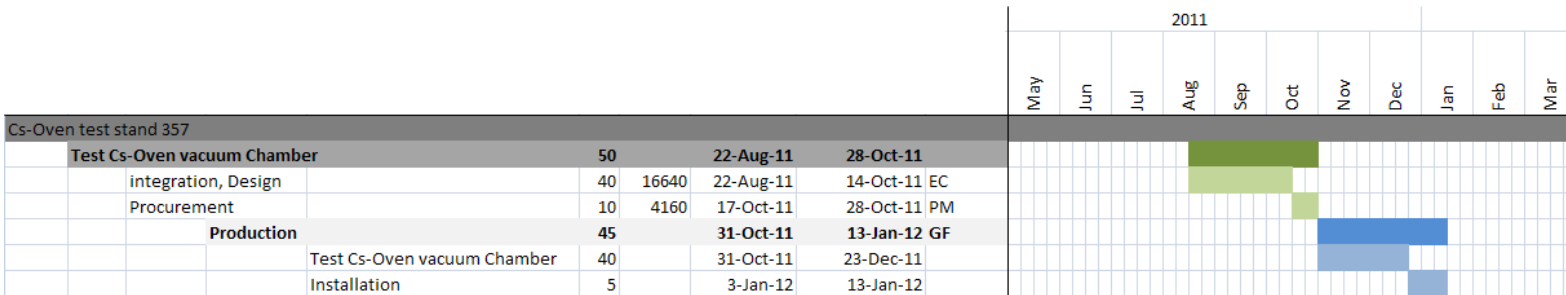
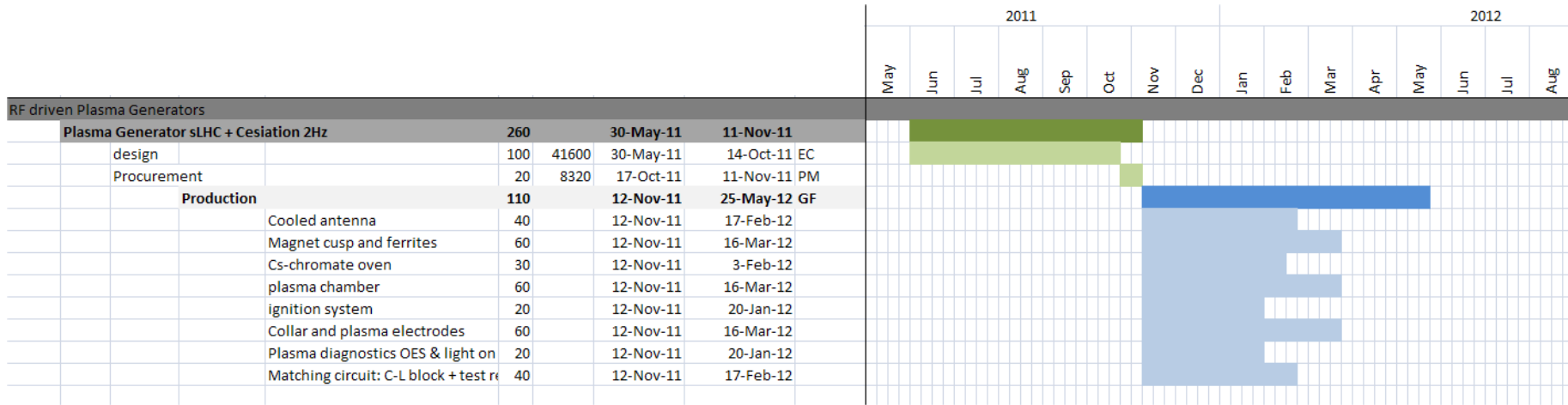
LINAC4 SPL Plasma generator + 2 Cesium oven 1/2

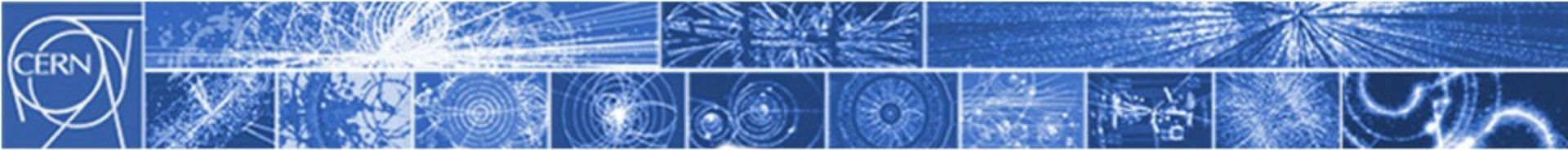


Modification of existing SPL Design
Plasma Generator
+ Cesium Injection

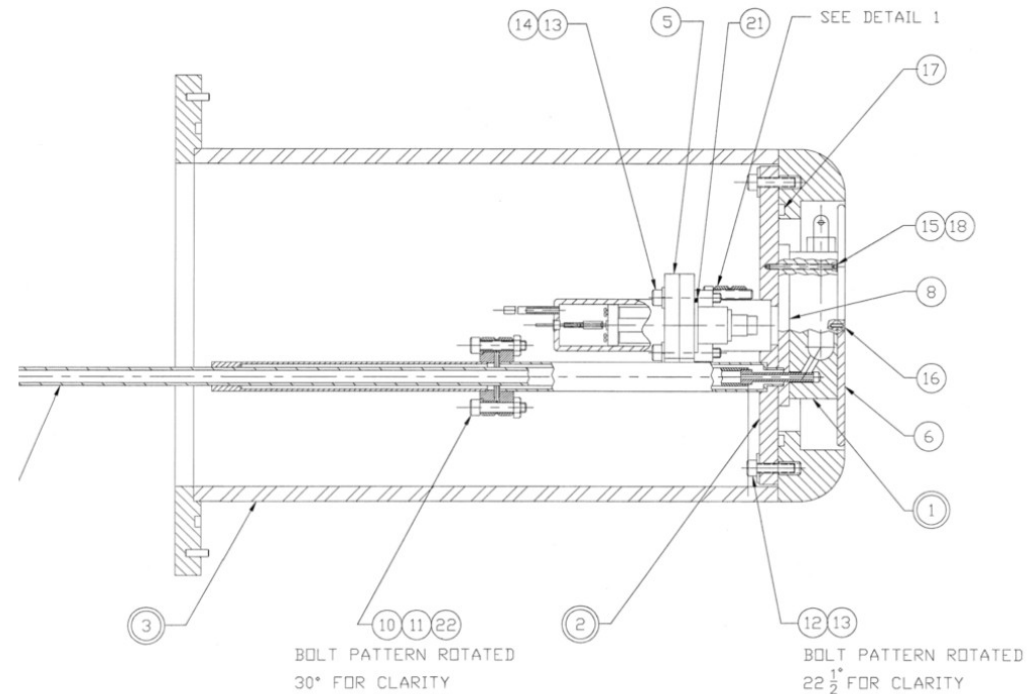


LINAC4 SPL Plasma generator + 2 Cesium oven 2/2





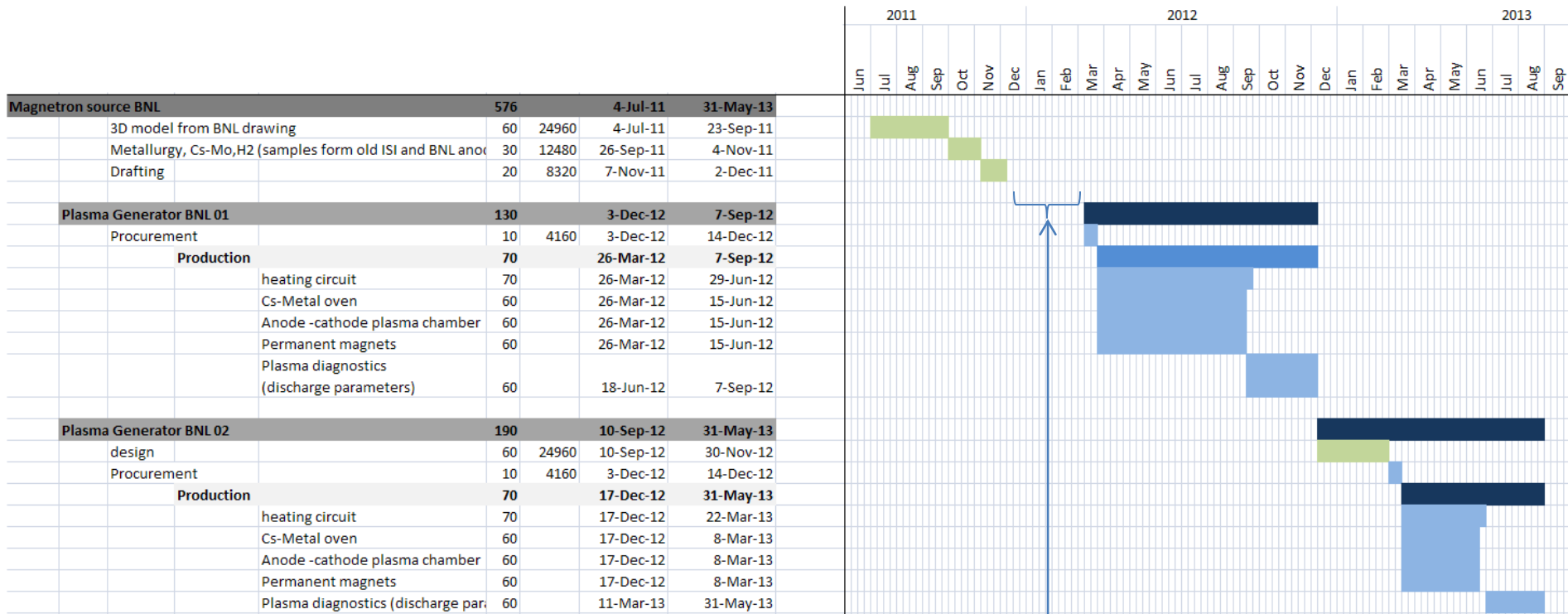
BNL Magnetron – Source Layout



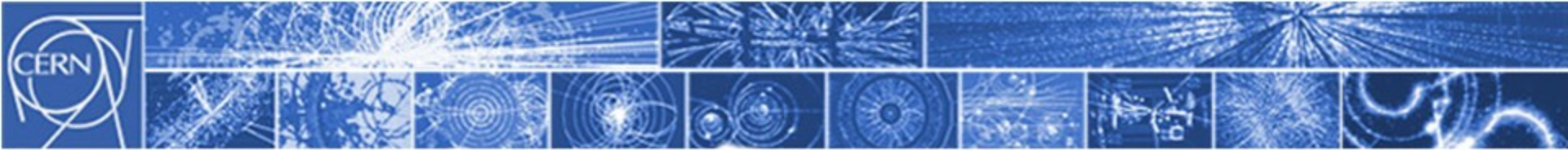
- 3D models from BNL Drawings
- Modification for LINAC4 fitting
- New drawing
- Production
- Test



Plasma Generator BNL 2/2



Design Validation

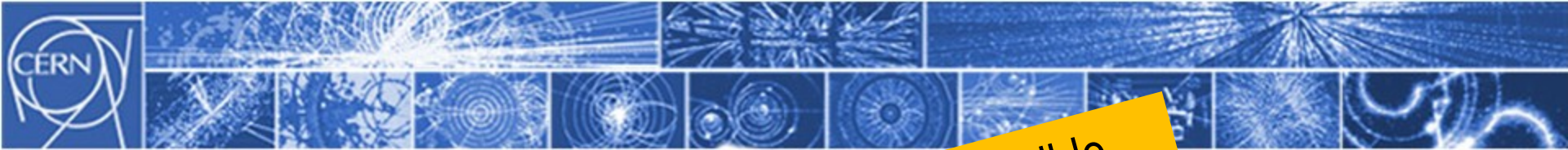


New Plasma Generator (2011 – 2014)

First Estimation for Design and Manufacturing

Design of new plasma generator + Modification of extraction

	Design	Production	
Plasma Generator proto 01	Jan- May 2012	Nov 2012	30 mA
Plasma Generator proto 02	Nov 2012	May 2013	30 mA
Plasma Generator proto 03	May 2013	Nov 2013	50 mA
Plasma Generator proto 04	Nov 2013	May 2014	50 mA



First Estimation: Tight but feasible depending on technical choices

New LINAC4 Front End Chamber
 New LINAC4 Faraday Cage
 LEBT + Diagnostic Support for B357

Diagnostic Components

LINAC4 SPL Plasma generator + 2 Cesium oven
 Plasma Generator BNL
 Plasma Generator BNL (Spare)
 Developments (2011 – 2014):

Plasma Generator proto 01
 Plasma Generator proto 02
 Plasma Generator proto 03
 Plasma Generator proto 04

	Design		Manufacturing
New LINAC4 Front End Chamber	Apr-11	Dec-11	Jun-12
New LINAC4 Faraday Cage	Jul-11	Sep-11	Dec-11
LEBT + Diagnostic Support for B357		Apr-11	Sep-11
<i>Diagnostic Components</i>	<i>Under Investigation</i>		
LINAC4 SPL Plasma generator + 2 Cesium oven	Jun-11	Nov-11	May-12
Plasma Generator BNL	Jun-11	Dec-11	Sep-12
Plasma Generator BNL (Spare)	Sep-12	Nov-12	Jun-13
Plasma Generator proto 01	Dec-11	May-12	Nov-12
Plasma Generator proto 02	May-12	Nov-12	May-13
Plasma Generator proto 03	Nov-12	May-13	Nov-13
Plasma Generator proto 04	May-13	Nov-13	May-14

0.8 FTE/Year (CERN Staff)
 +
 650 kChF Design Office Support

1.5 FTE/Year (CERN Staff)
 +
 650 kChF Manufacturing

500 kChF Design Office Support +
 Manufacturing
 Awaiting confirmation

