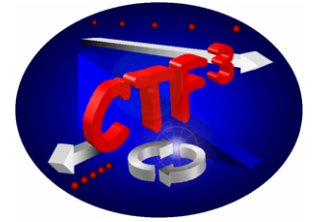


Status of CTF3

G.Geschonke
CERN

CTF3 objectives



Provide answers for CLIC specific issues by 2009

→ Write CDR in 2010

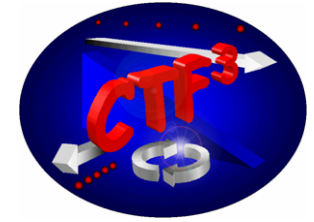
Two main missions:



Prove CLIC 30 GHz RF
power source
(bunch manipulations,
beam stability,
30 GHz extraction)

Provide 30 GHz RF power
for validation of CLIC
components
(accelerating structures,
RF distribution, PETS
structures)

CTF3 objectives



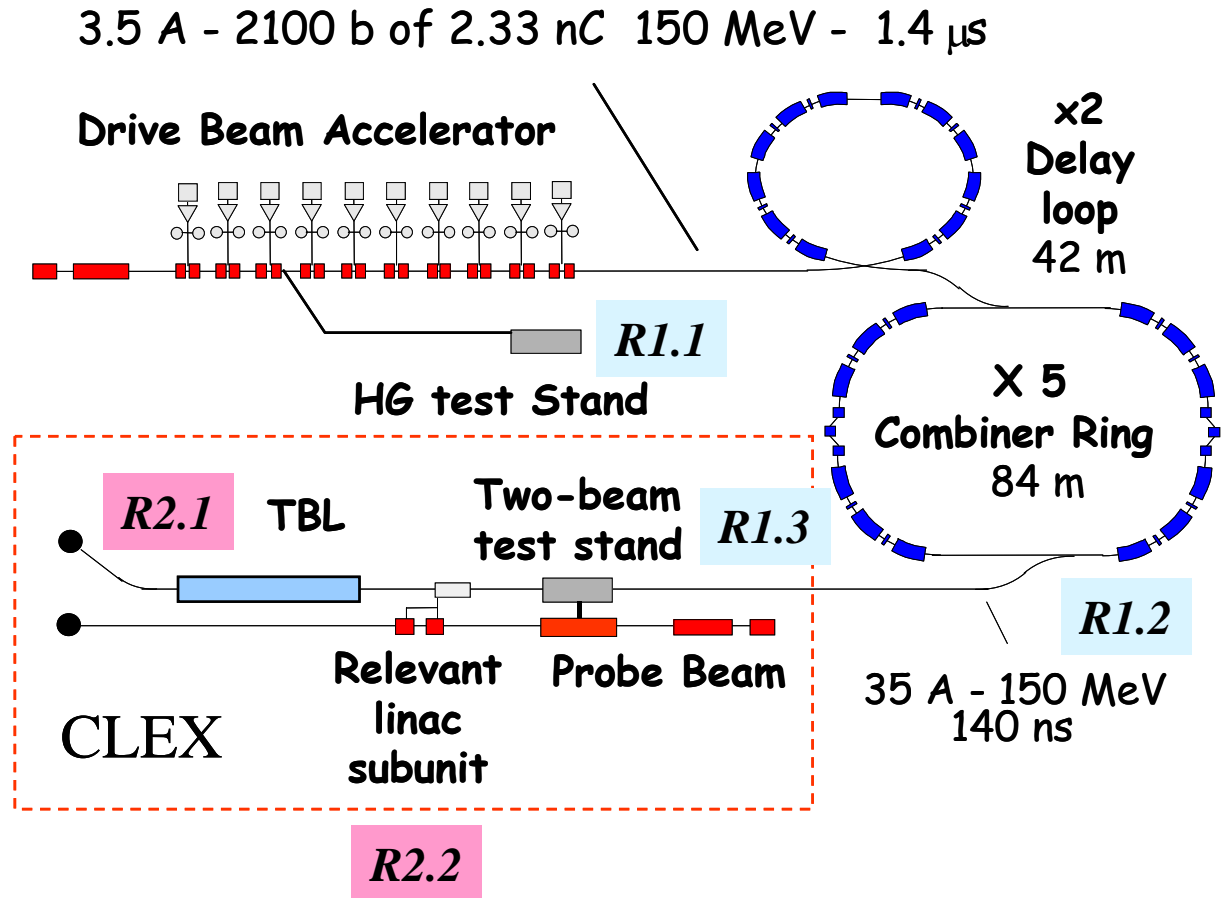
R1.1 CLIC accelerating structure,

R1.2 Drive beam scheme with a fully loaded linac

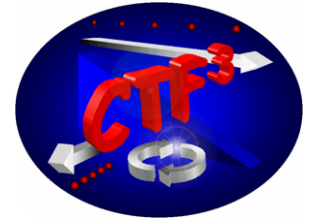
R1.3 Power-Extraction Structure (PETS)

R2.1 stability and losses in the drive beam decelerator,

R2.2 Test of a relevant linac sub-unit with beam

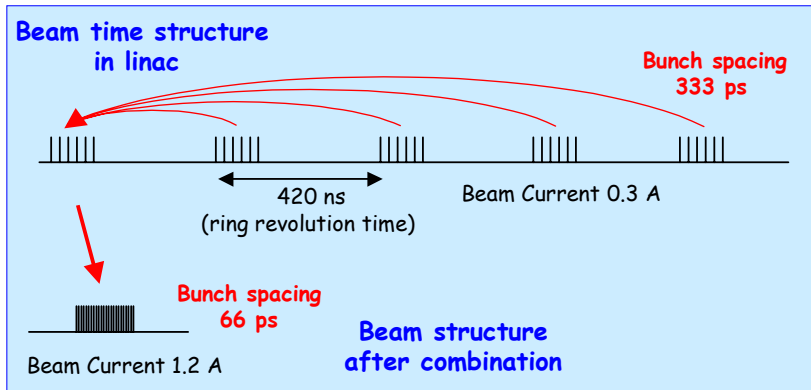
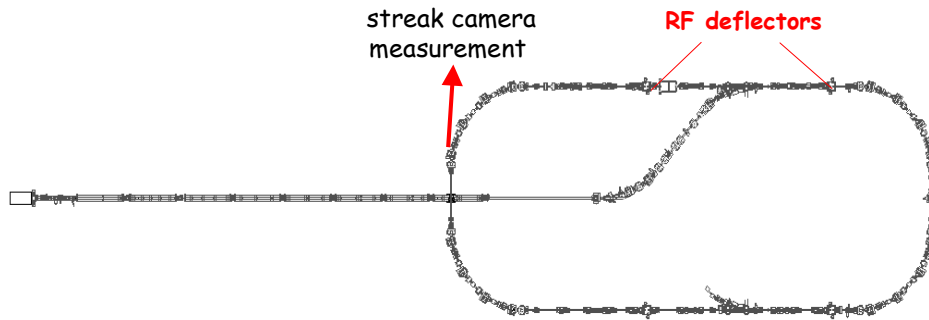


Demonstrated bunch interleaving

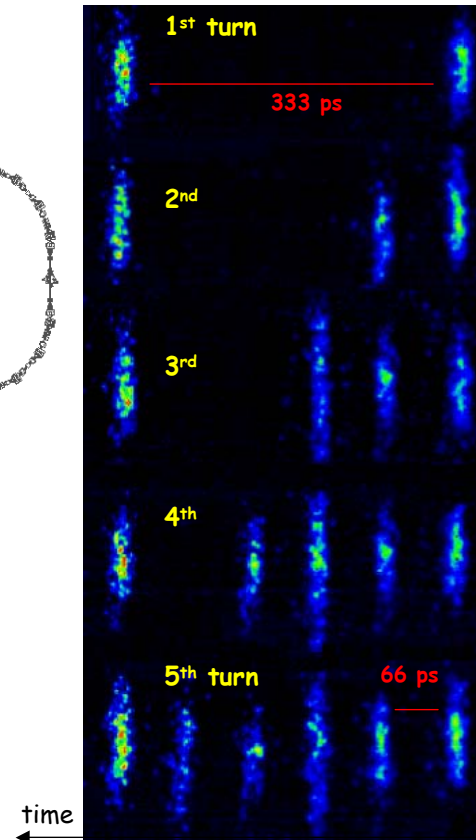


CTF3 - PRELIMINARY PHASE

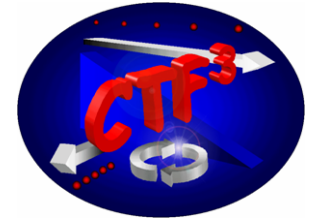
low-charge demonstration of electron pulse combination and bunch frequency multiplication by up to factor 5



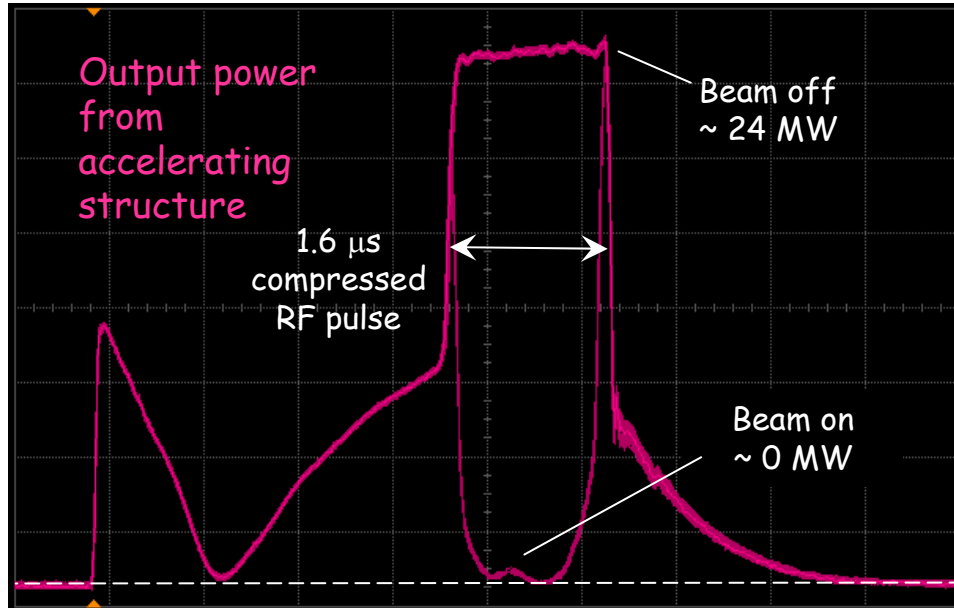
Streak camera image of beam time structure evolution



Demonstrated full beam loading



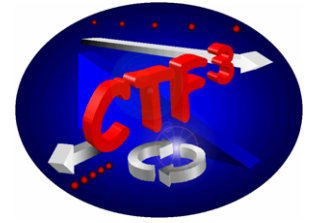
First demonstration of full beam loading



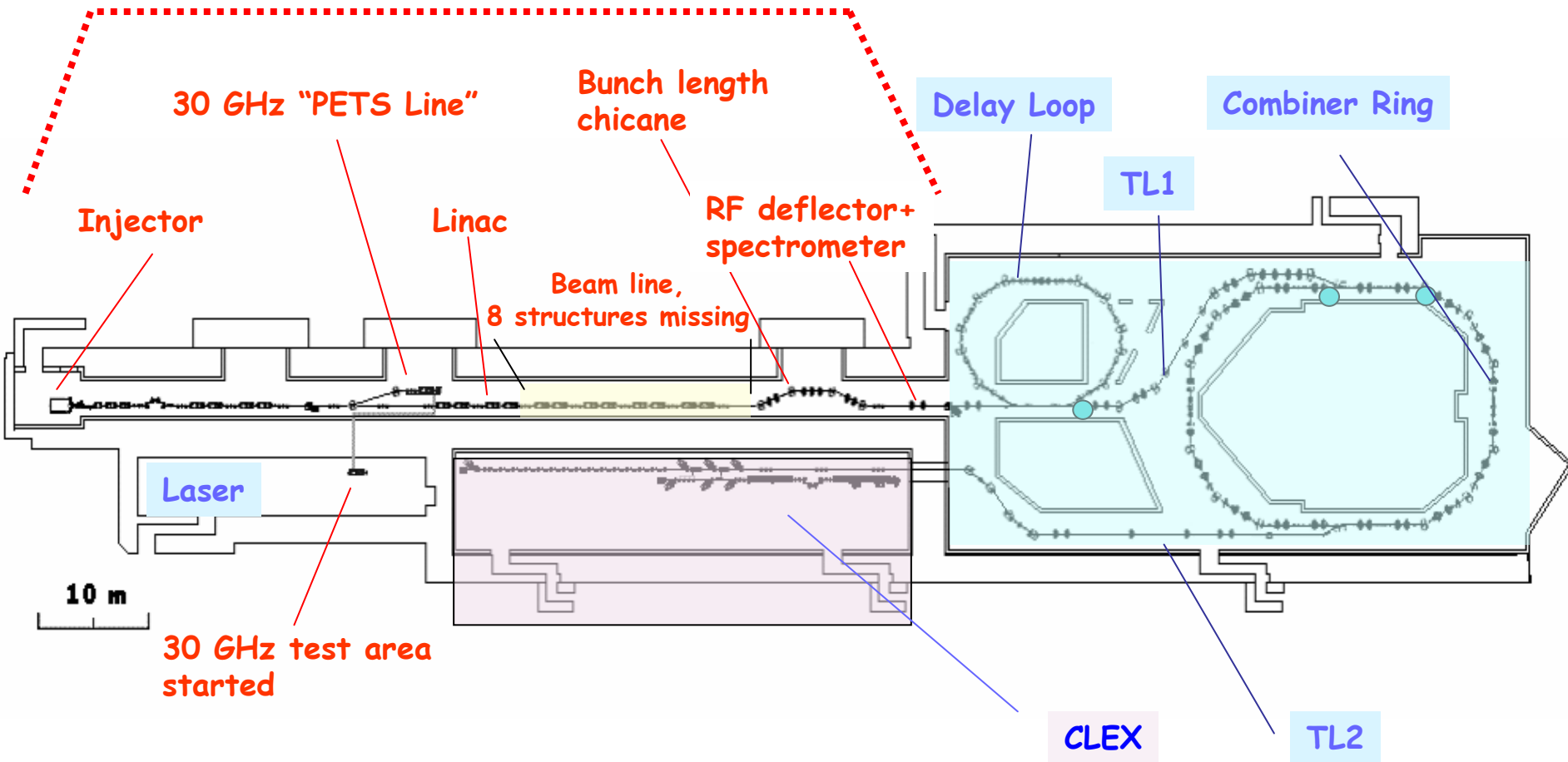
Beam Parameters

	Nominal	Achieved
I	3.5 A	4.5 A
τ_p	1.5 μ s	1.5 μ s
E	20 MeV	20 MeV
$\varepsilon_{n,rms}$ π mm mrad	100 π mm mrad	60-90
$\tau_{bunch,rms}$	5 ps	< 6.5 ps

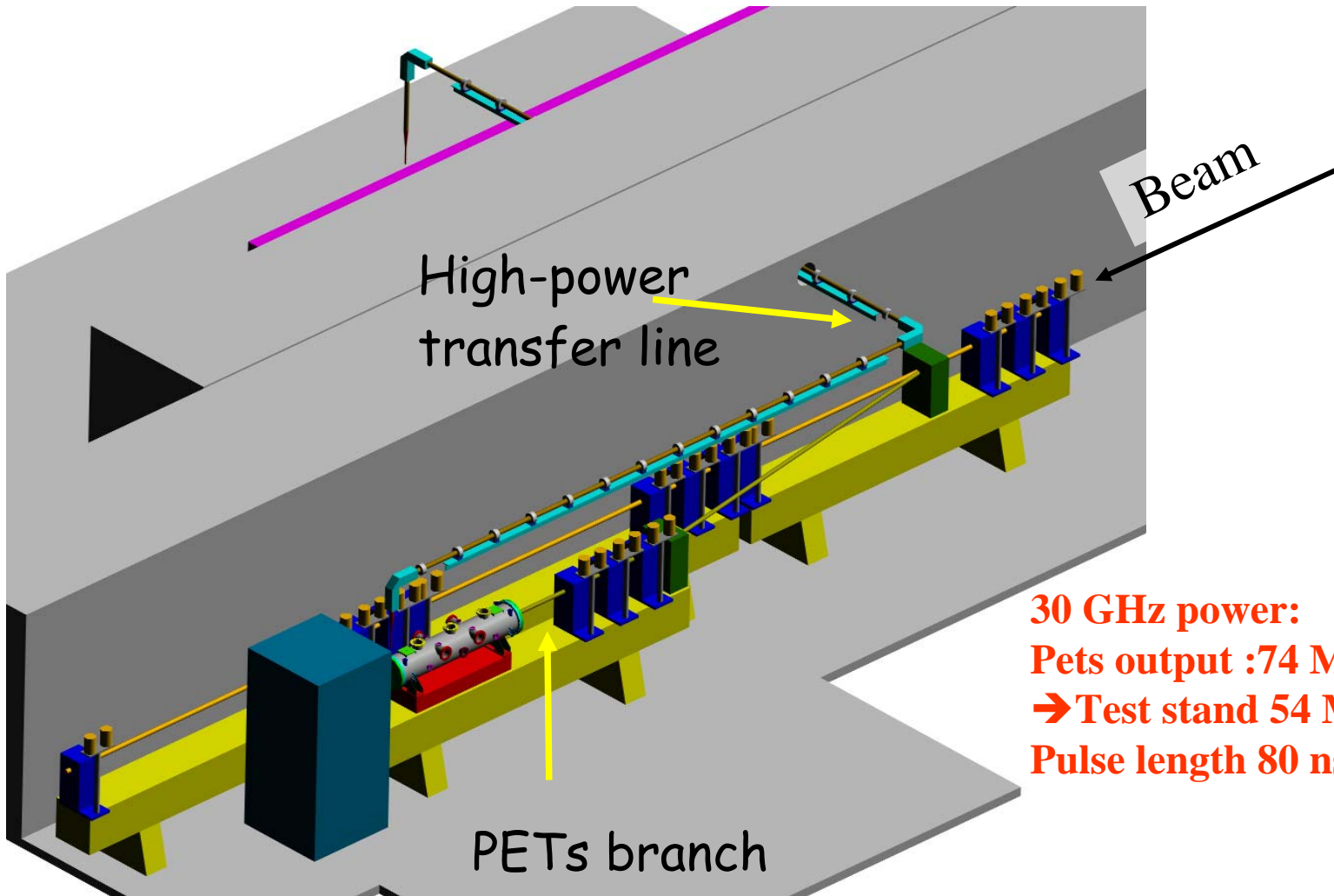
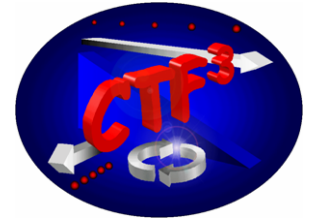
Existing installation



Commissioned with beam

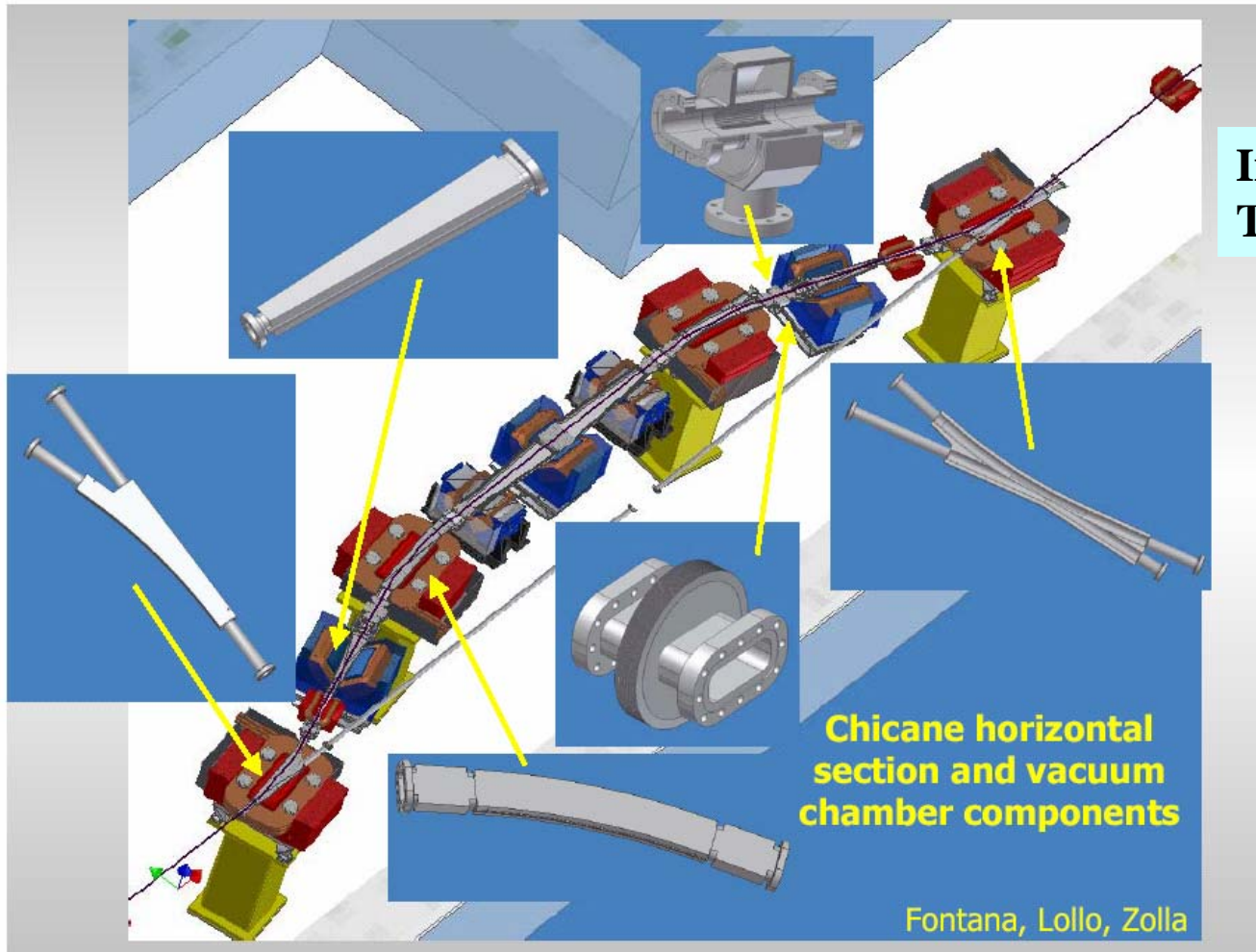
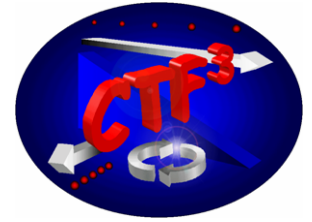


Two-Beam 30 GHz power production in CTF3



**30 GHz power:
Pets output :74 MW
→ Test stand 54 MW
Pulse length 80 ns at 54 MW**

Installation status INFN

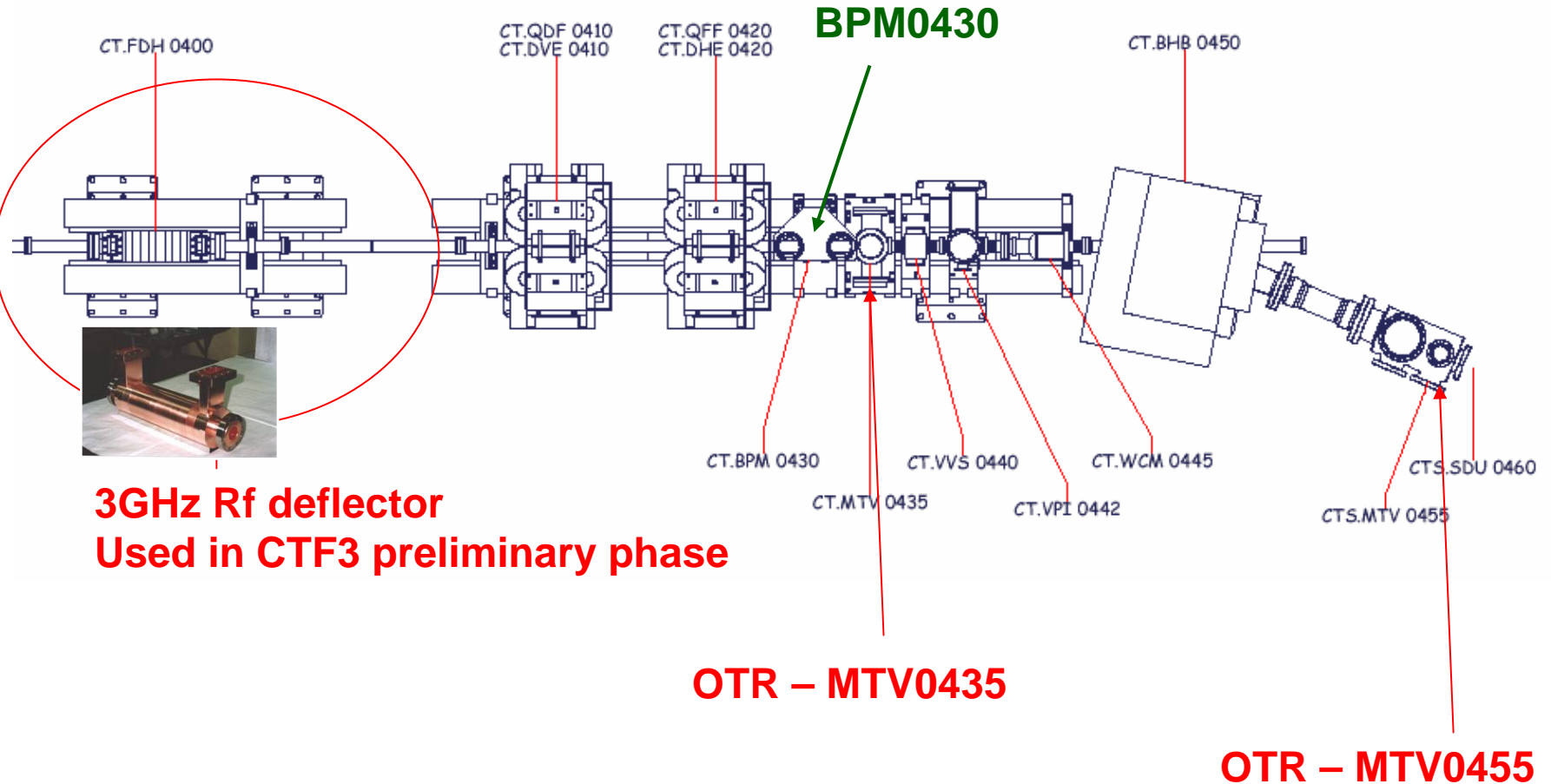


**Installation finished
Tested with beam in 2004**

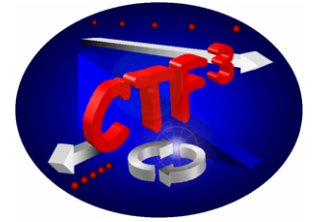
Tunable R_{56}
from bunch
stretcher to
compressor

Slide from A.Ghigo

Bunch length measurement set-up



Plan for 2005

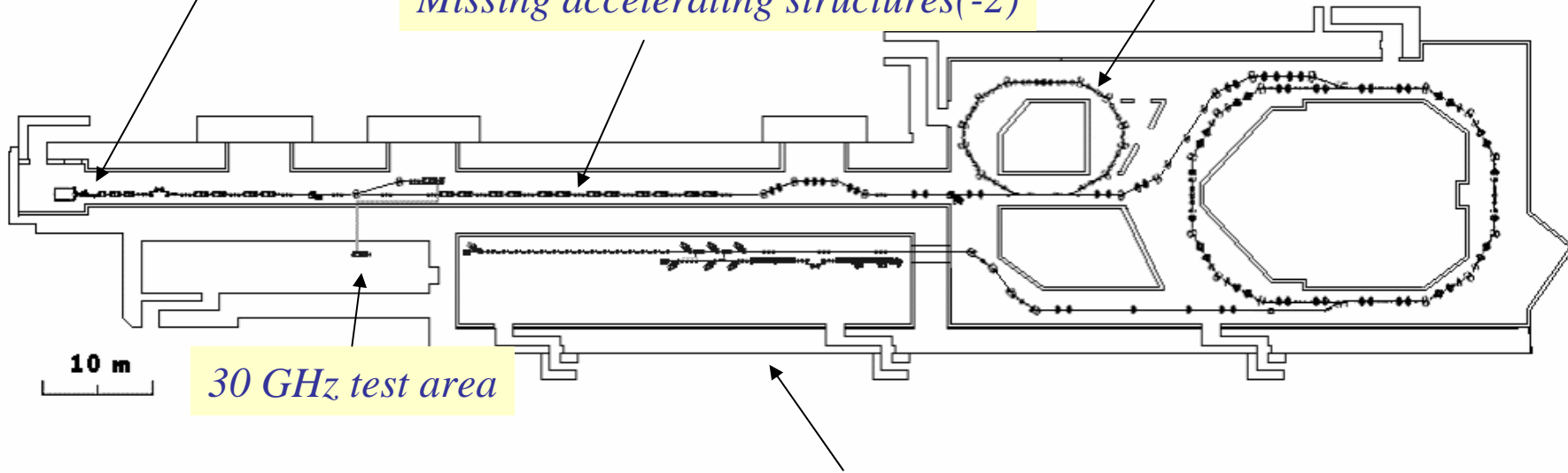


Install and commission:

*Sub-harmonic bunching system
1.5 GHz*

*Delay Loop (INFN Frascati)
(Building modification done)*

Missing accelerating structures(-2)



30 GHz test area

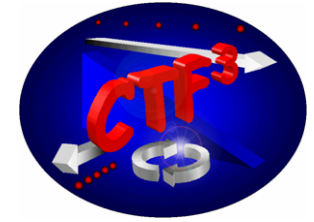
CLEX building

In addition:

add 2 accelerating structures in front of PETS

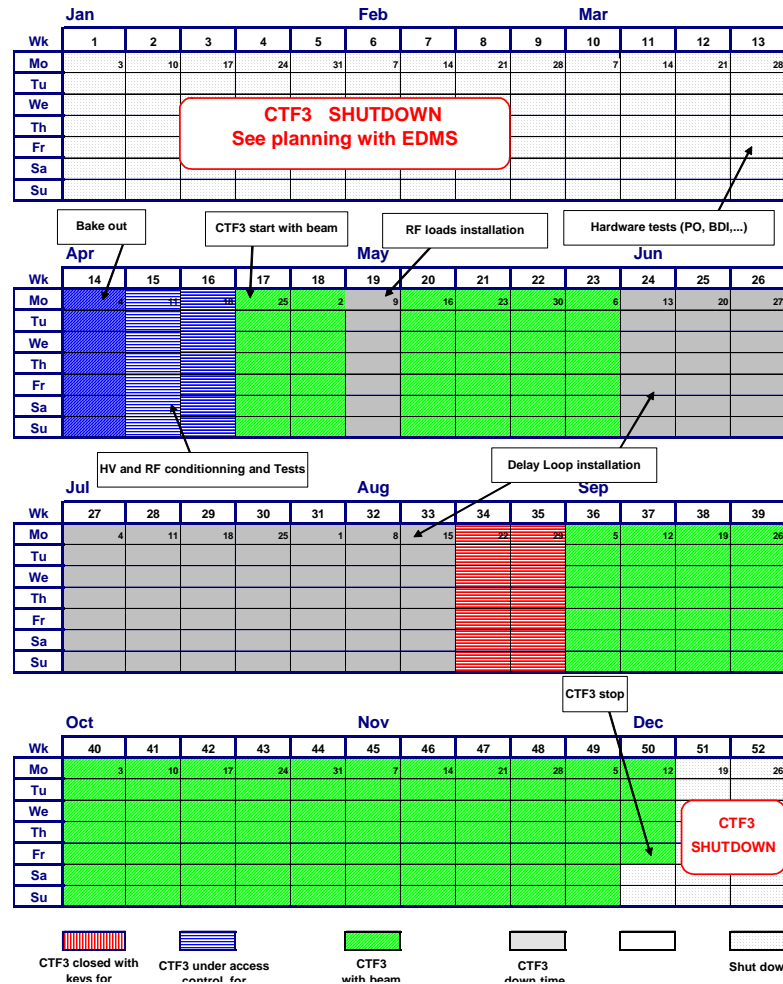
add collimator in PETS line

CTF3 operating schedule



2005 - CTF 3 - Schedule

17th November 2004



CTF3 programme

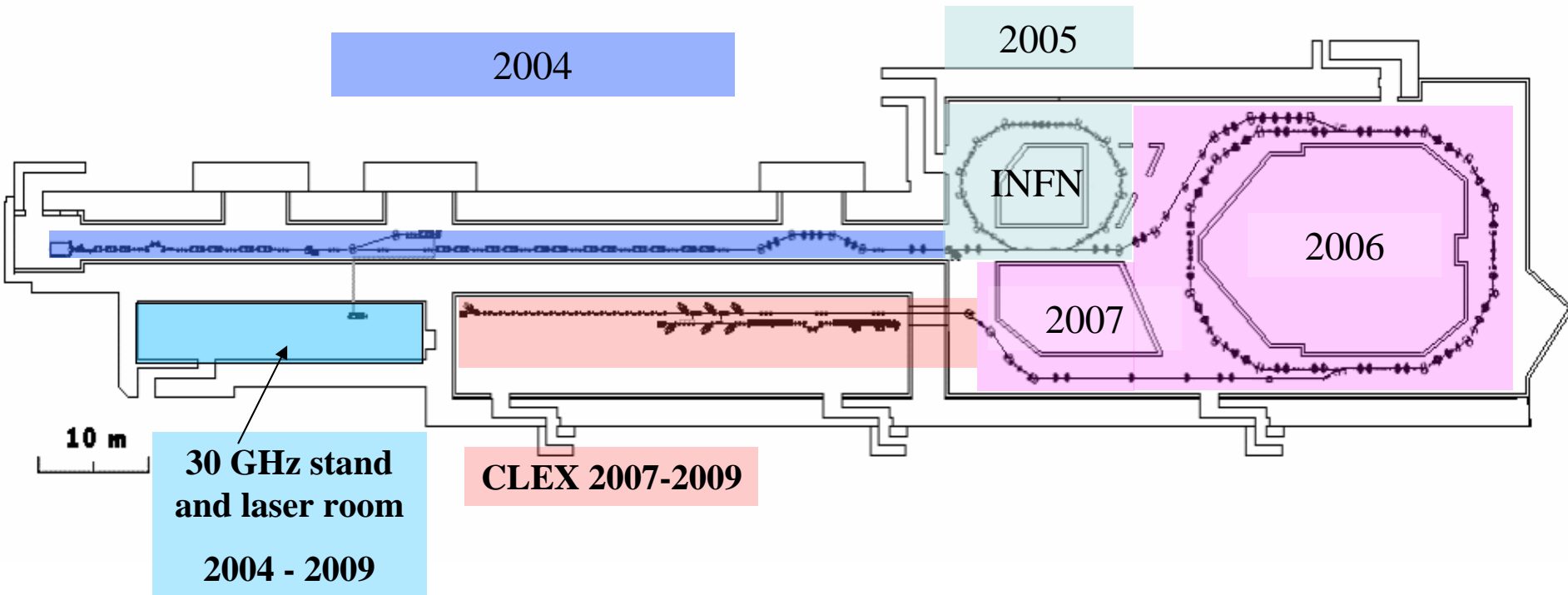
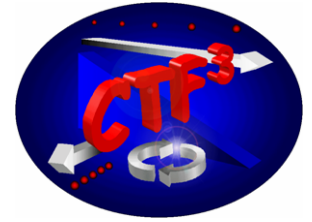
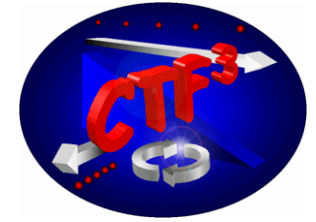


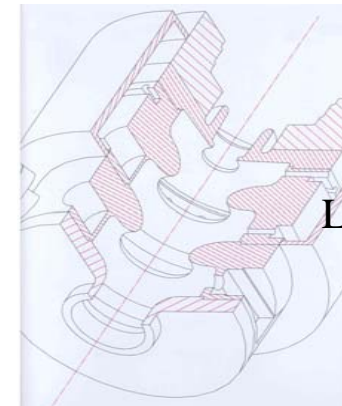
Photo Injector



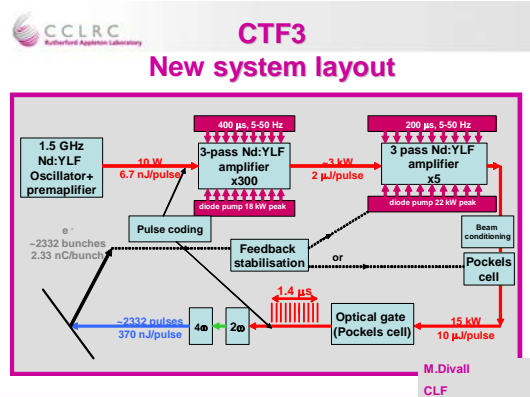
In parallel:

Development of Photo injector Funded by EU

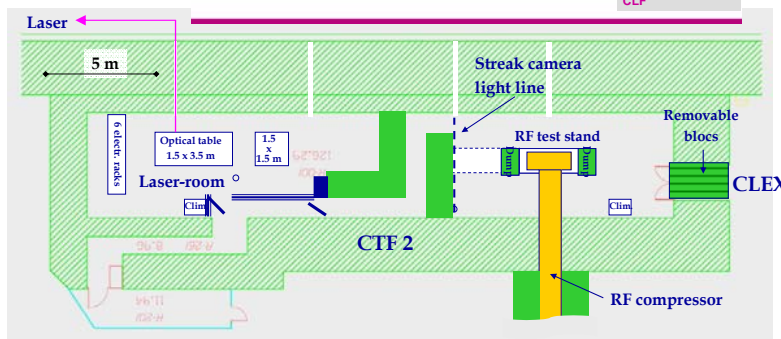
Plan to install instead of Thermionic injector in 2007.



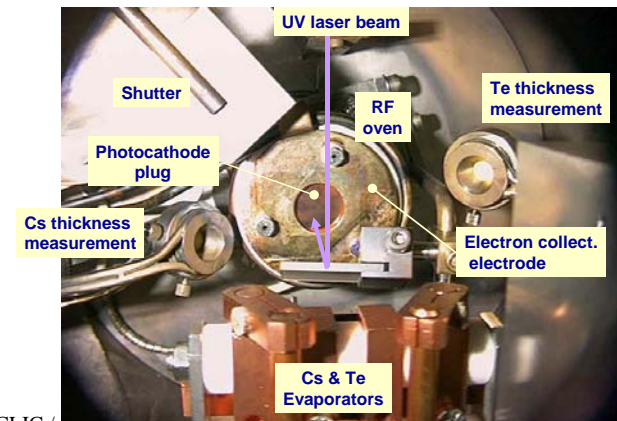
LAL RF gun



RAL: Laser

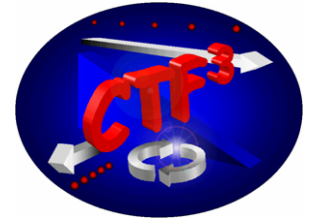


CERN: Photo cathodes



CLIC / CTF3 collaboration meeting 26.1.2002 - G.Geschonke - Status

Collaboration meeting

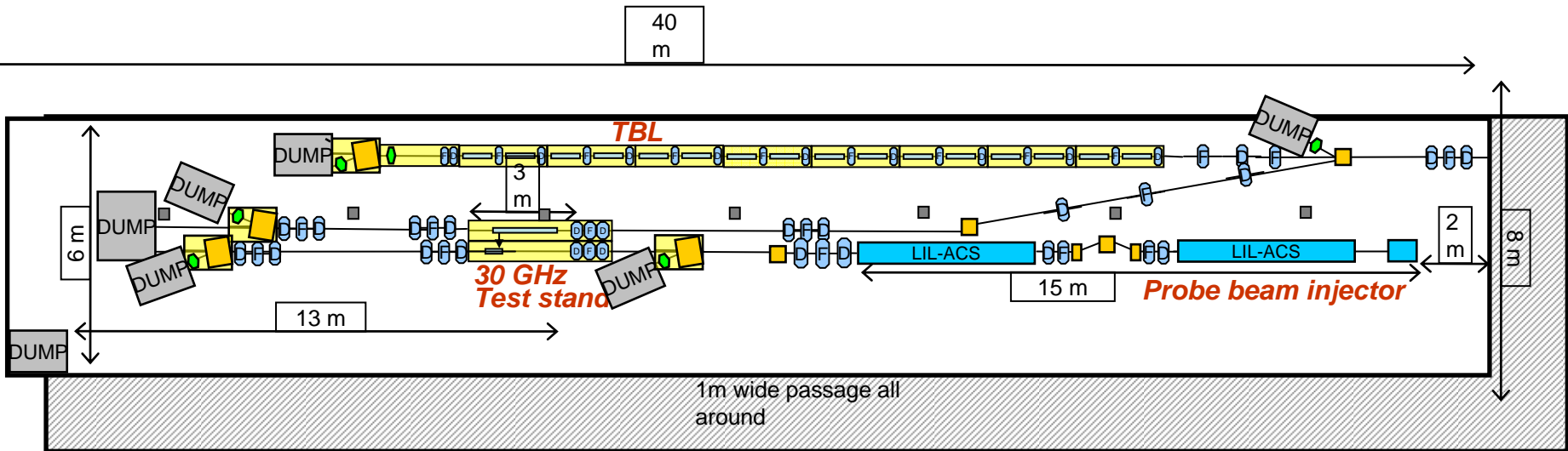


Full collaboration meeting in November 2004

32 presentations

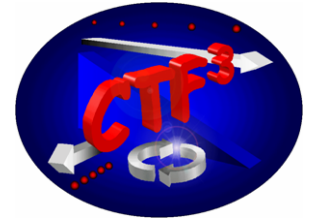
All collaborating institutes participated

First discussions on CLEX and TBL



H.Braun

Conclusion



Programme is on schedule

Very promising results

PETS line commissioned

Improvements proposed for more stable operation

EU funded programme on track

Next stages in preparation,

Combiner ring layout well advanced, Critical items ordered

TL2, Two Beam test stand design starting

Test Beam Line TBL first ideas

Good chance to complete in time, if all collaboration proposals receive funding

Not enough staff / time for operation

**Highly motivated team,
excellent collaboration between all partners**