Summary of G.Guignard

CLIC Meeting
25.06.04

1st Workshop of ELAN
INFN-LNF, Frascati, 4-6 May 2004

09:00	Plenary Session - opening	Aula Touschek
	Welcome - S.Bertolucci, INFN-LNF Director	
	European Design Study towards a GLC - G.Guignard	
	ITRP (choice of technology for a GLC) - J.E.Augustin	
	Presentation of the 5 WP of ELAN	
13:30	*Lunch*	
14:30 18:15	Parallel Sessions: LTECNC - LTECSC - BDYN - INSTR - ANAD	

09:00	Parallel Sessions: LTECNC - LTECSC - BDYN - INSTR - ANAD	
13:30	*Lunch*	
14:30 18:30	Plenary Session - Critical discussion on the strategy of ELAN	Aula Touschek
	Introduction - F.Richard	
	Presentations from each WP: main goals, tasks to be performed in 2004, connections to other WP, dissemination of knowledge	
	Scenario of Connection of ELAN to EUROTEV - E.Elsen	
	Scenario of Connection of ELAN to JRA SRF- D.Proch	
	Scenario of Connection of ELAN to JRA PHIN - A.Ghigo	

09:00 13:00	Plenary Session - Reports from the Work Packages: LTECNC - LTECSC - BDYN - INSTR - ANAD	Aula Touschek

European Design Study Towards a Global TeV Linear Collider

2005-2007

Total Expected Budget (k€)	Requested EU Funding (k€)
29136	11252

Design Study Objectives

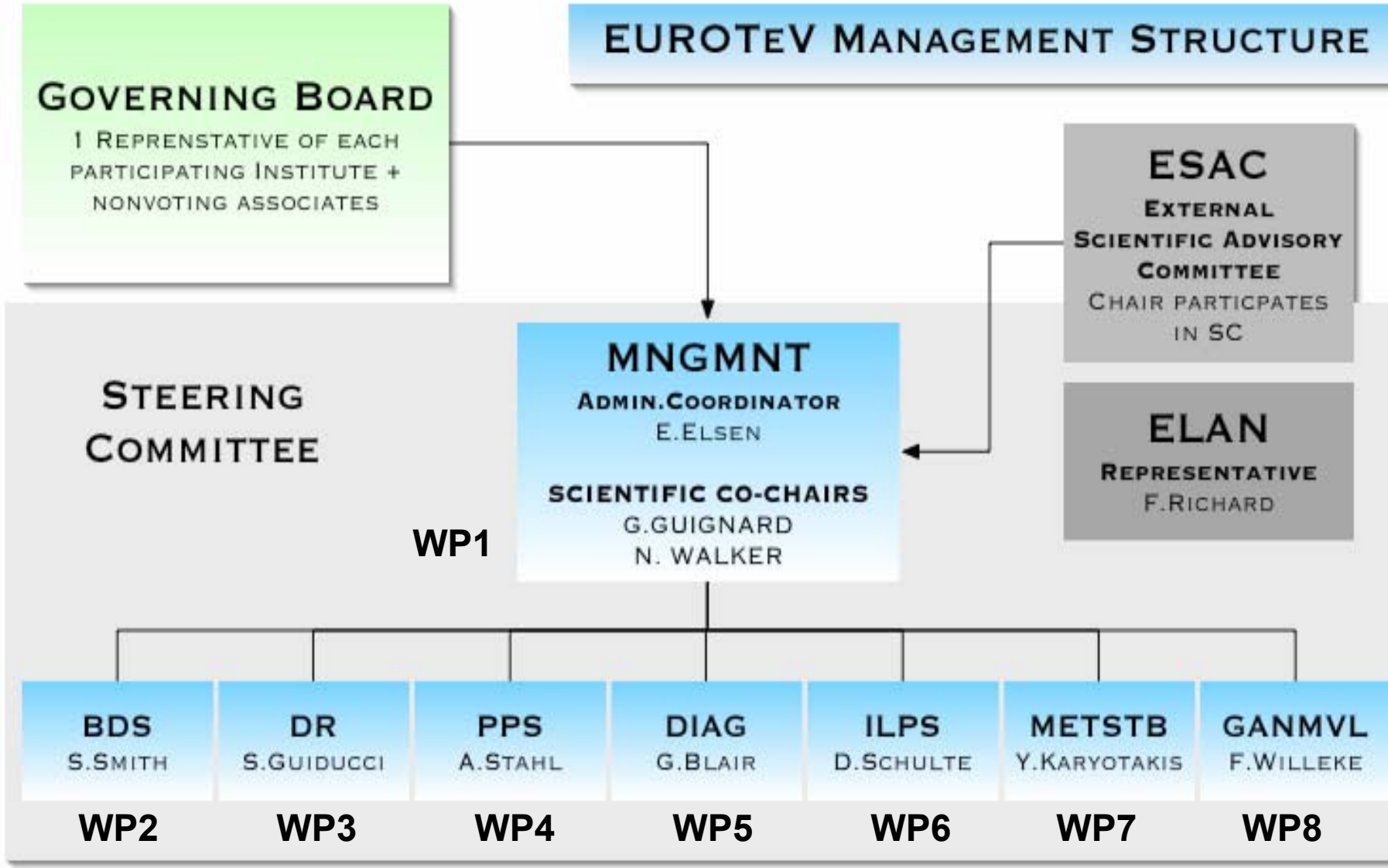
ILC-TRC reviewed the existing LC designs and concluded – early 2003 –
- no fundamental technological grounds prohibiting any of the designs
- many critical R&D topics to be addressed before such a facility could be constructed.

ILC-TRC identified many critical R&D items, common to all designs, and *largely independent* of the choice of linac technology (sub-systems excluding the main linacs):

Source (specifically e+);
Damping Rings;
Bunch Compression;
Beam Delivery System;
Novel Diagnostics systems,
Computer modelling (simulations) of the luminosity performance.

EUROTeV proposal focuses on these high ranking topics.

+ Vibration stabilization & Global Accelerator Ntwork


EUROTeV MANAGEMENT STRUCTURE
GOVERNING BOARD
1 REPRENSTATIVE OF EACH PARTICIPATING INSTITUTE + NONVOTING ASSOCIATES
ESAC
EXTERNAL SCIENTIFIC ADVISORY COMMITTEE
CHAIR PARTICPATES IN SC
STEERING COMMITTEE
MNGMNT
ADMIN.COORDINATOR
E.ELSEN
SCIENTIFIC CO-CHAIRS
G.GUIGNARD
N. WALKER
WP1
ELAN
REPRESENTATIVE
F.RICHARD
BDS
S.SMITH
DR
S.GUIDUCCI
PPS
A.STAHL
DIAG
G.BLAIR
ILPS
D.SCHULTE
METSTB
Y.KARYOTAKIS
GANMVL
F.WILLEKE
WP2
WP3
WP4
WP5
WP6
WP7
WP8

ELAN vis a vis EUROTeV

- ELAN
  - Review exiting experience in the various accelerator research areas
  - Foster exchange of ideas
  - Maintain contacts to various JRA's
  - Deliverables: **Summary Reports**
  -
- EUROTeV
  - Research towards design of LC components
  - Deliverables: **Research Reports**

ELAN could draw from the results in EUROTeV and put them into larger context.

Relationship to EUROTeV

- So far our mission was to help for the start of EUROTeV and to participate to the SC
- There is now a demand from EUROTeV, supported by ELAN, for a stronger synergy to avoid duplication of effort (same people, same conveners)

-> Common meetings highly desirable

- Although final reports need to be clearly distinct intermediate publications could be in many cases common

ELAN & EUROTeV practical aspects

- Meeting & Reports
  - May be wise to have the annual EUROTeV meeting adjacent to the ELAN meeting for ease of communication (and to reduce travel)
  - EUROTeV Research Reports may form a considerable part of the factual basis of the ELAN reviews and should be referred to
  - At all times have to make clear where the results originated and how they have been funded
    - Distinct ELAN Summary Report (with CARE emphasis)
    - Annual EUROTeV summary
      - Results of detailed studies
      - Geared towards Design of LC

ELAN NETWORK WP1

LINAC TECHNOLOGY, NORMAL CONDUCTING

LTECNC

CARE-ELAN outline

Coordination of R&D on electron accelerators at European level.
Evaluating the various technologies for improving present infrastructures.
Contributing to defining a roadmap for future electron accelerators and colliders.
Broadening the participation and promoting new groups.

Plan of the LTECNC session in the 1st ELAN meeting

Through overviews of the ongoing studies, launch exchanges of information and discussions about the topics mentioned above:

- **the two beam technique and the status of the test facility CTF3**
- **the high-gradient accelerating structures**
- **the e^- source and the photo-injector technology**
- **the vibration stabilization**
- **the RF deflectors for ring injection/extraction**

the following topics raising common interests of some WPs:

- **source and injector** — **LTECNC, LTECSC, ANAD**
- **stabilization and deflectors** — **LTECNC, LTECSC**
- **combining technologies for reaching higher energies** — **LTECNC, LTECSC**

….

Program of Workshop LTECNC-Session

WP1 Session of LTECNC

Tuesday 14:30-15:50

-- Introduction to LTECNC workshop-plan (G.Guignard)
Discussions/Presentations on
-- R&D for CLIC technology feasibility study J.P. Delahaye
-- CTF3, status of INFN collaboration A.Ghigo

Tuesday 16:15 18:05

Common session with LTECSC and ANAD on Sources of electrons

2 presentations from JRA PHIN
-- Overview about the JRA2: PHIN A.Ghigo
-- Overview of the present status of the SRF gun design and construction J.Teichert

3 presentations from ANAD
-- The Eindhoven High-brightness Electron Source Programme M.van der Wiel
-- Electron acceleration in the Bubble regime: analytical theory and numerical simulations S. Gordienko
-- The laser based electron beam approach : review and perspectives V. Malka

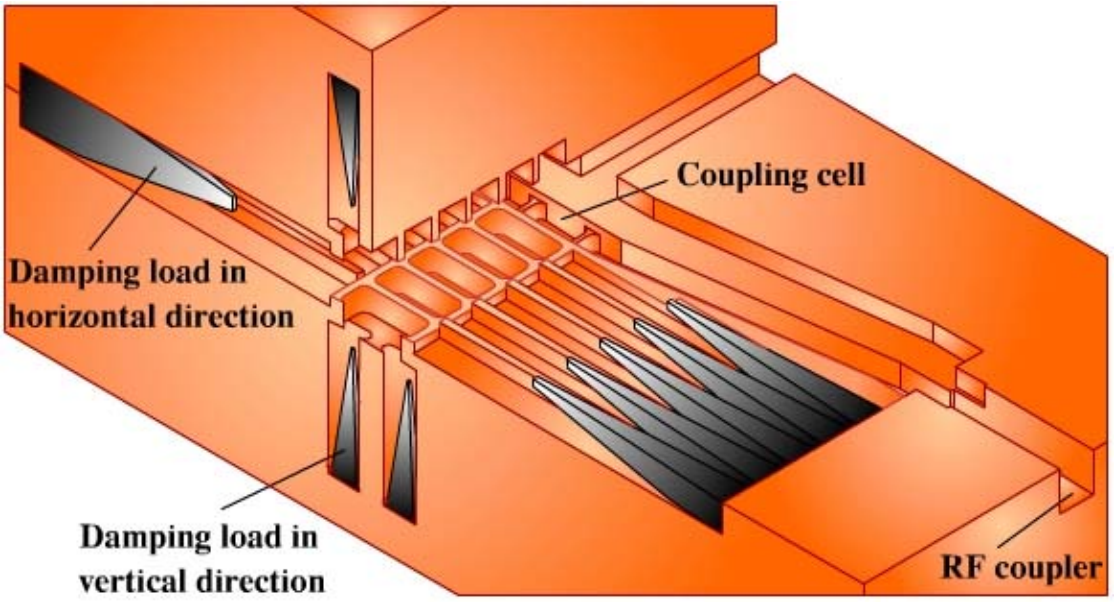
Wednesday 9:00 11:00

Discussions/Presentations on
-- Overview of CLIC accelerating and transfer structure development A. Grudiev
-- Development of a planar accelerating structure (Fig. p12) H. Henke
-- A short pulse two-beam accelerator with energy recuperation (Fig. p13) H. Henke
-- Status of the Linear Collider Alignment & Survey project (LiCAS fig. p14) A.Mitra
Study the possibility to improve from 200 μm over 600 m to 10 μm
-- Design of an RF photo-injector in the framework of the JRA2 PHIN R.Roux

Wednesday 11:30 – 13:30

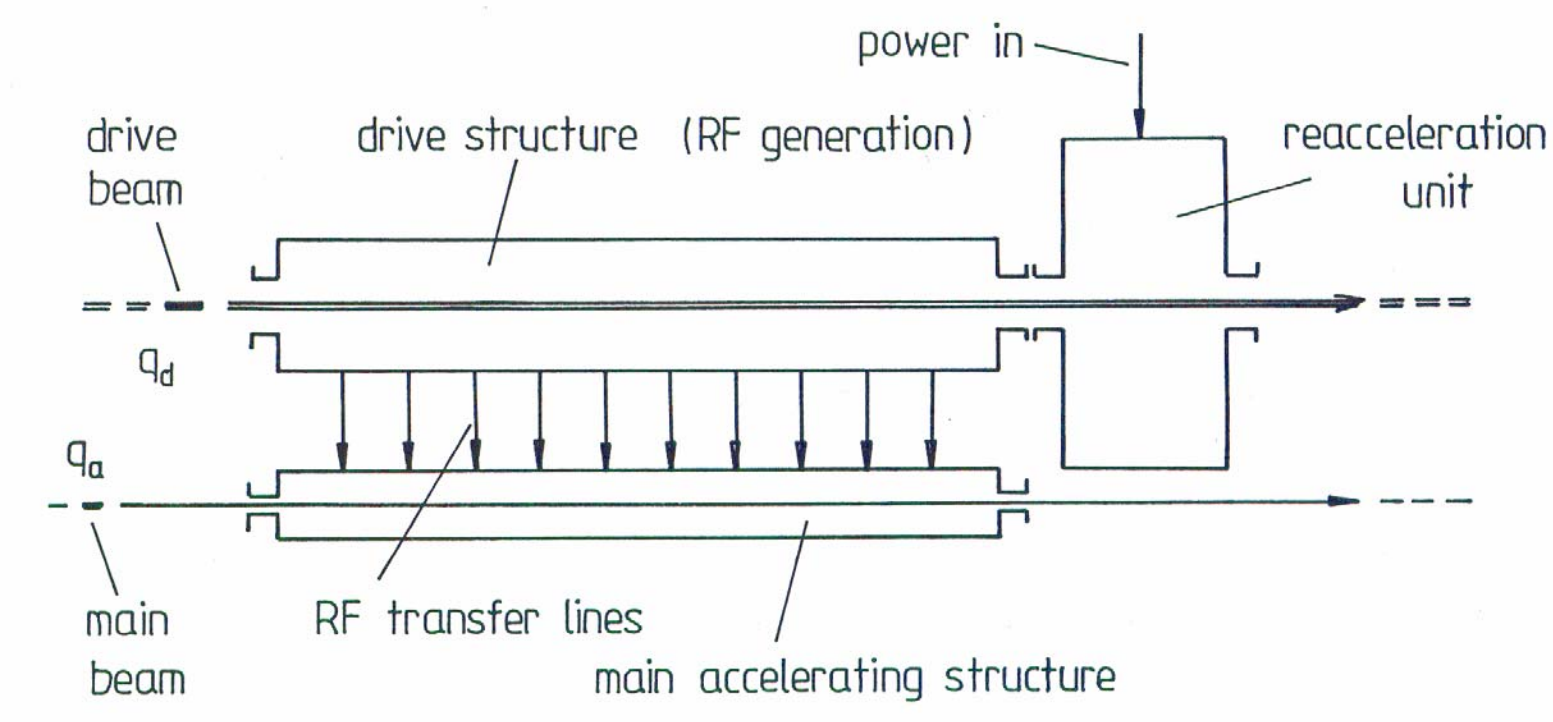
Common session with LTECSC

Talks on issues common with DS
-- Stabilization of Accelerator Magnets to the Sub-nm Level R.Assman
-- Stabilization studies from LAPP/ESIA (Fig. p15) A. Jeremie
Interests at LAPP/CERN/DESY, brought together by A.Jeremie
-- RF Deflectors for Combiner and Damping Rings (Fig. p16) F.Marcellini
applications to CTF3/CERN and DR/DESY, brought together by F.Marcellini
-- Mutual exchange of information between the NC-SC technologies, discussions on specific or common/critical aspects, like the two preceding topics



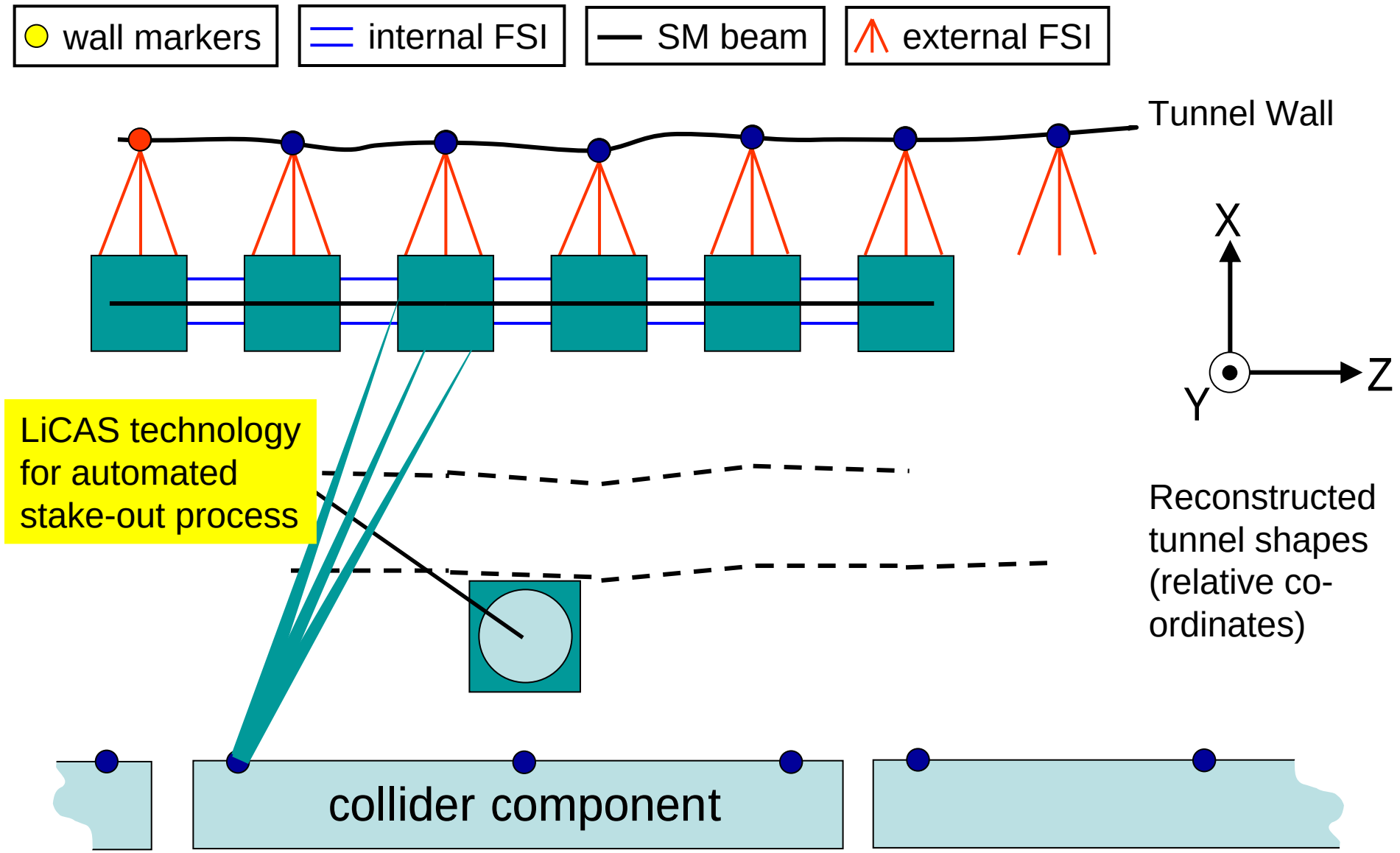
Planar structure with loaded waveguides in horizontal and vertical direction.

10 GHz aluminum model with damping waveguides and loads.



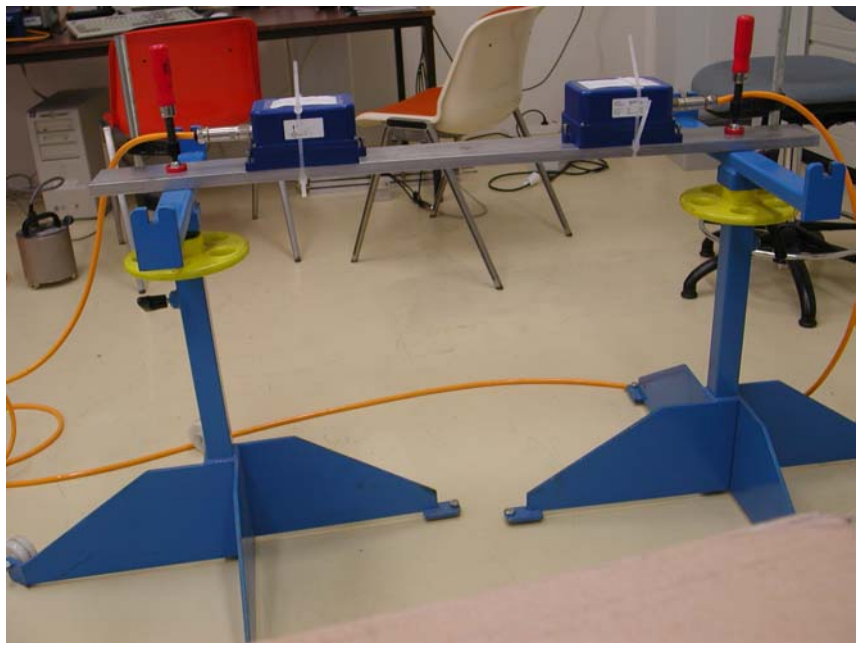
Schematic view of a short pulse two-beam accelerator period.

LiCAS Measurement Principle

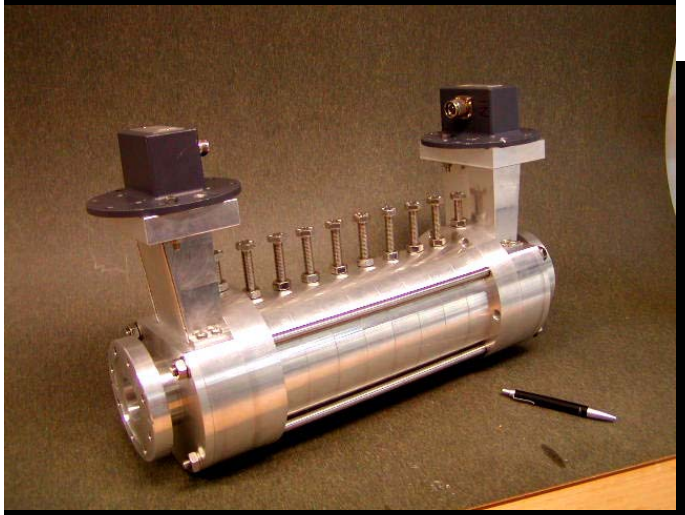


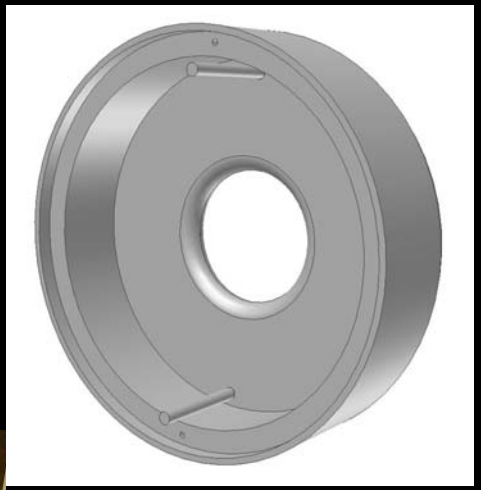
Vibration measurements

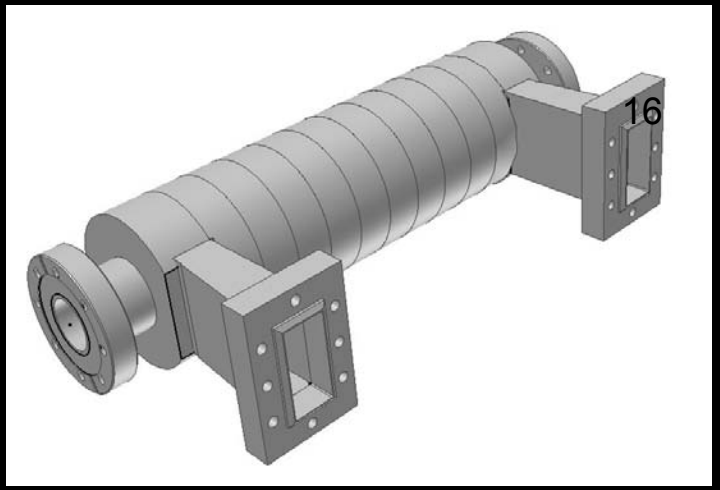
Test bench at LAPP



ALUMINIUM PROTOTYPE







MECHANICAL DRAWING

FABRICATION STEPS

Decided Items (WP1)

- **Write a summary of the WS sessions, with reference to the ELAN notes and reports published by the speakers (deliverables).**

- **Use web-sites and/or data base for collecting the information, and with link to existing (or to be created) sites containing updated doc of teams involved:**
  e.g. CTF3, PHIN, connected WPs, vibration control, structure R&D (?)…

- **Coordination of working lines about topics of common interest:**
  e.g. vibration stabilization (A.Jeremie)
  pre-alignment (A.Mitra)
  RF deflectors (F.Marcellini)

- **Write ELAN (WP1) end-of-year report on the basis of:**
  WS summary, publications, proceeding of CTF collaboration meeting and on PHIN report.