

CT line installation and Delay Loop hardware status

A.Ghigo for CTF3 Collaboration

Frascati (INFN - LNF) collaboration

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M.Zobov**

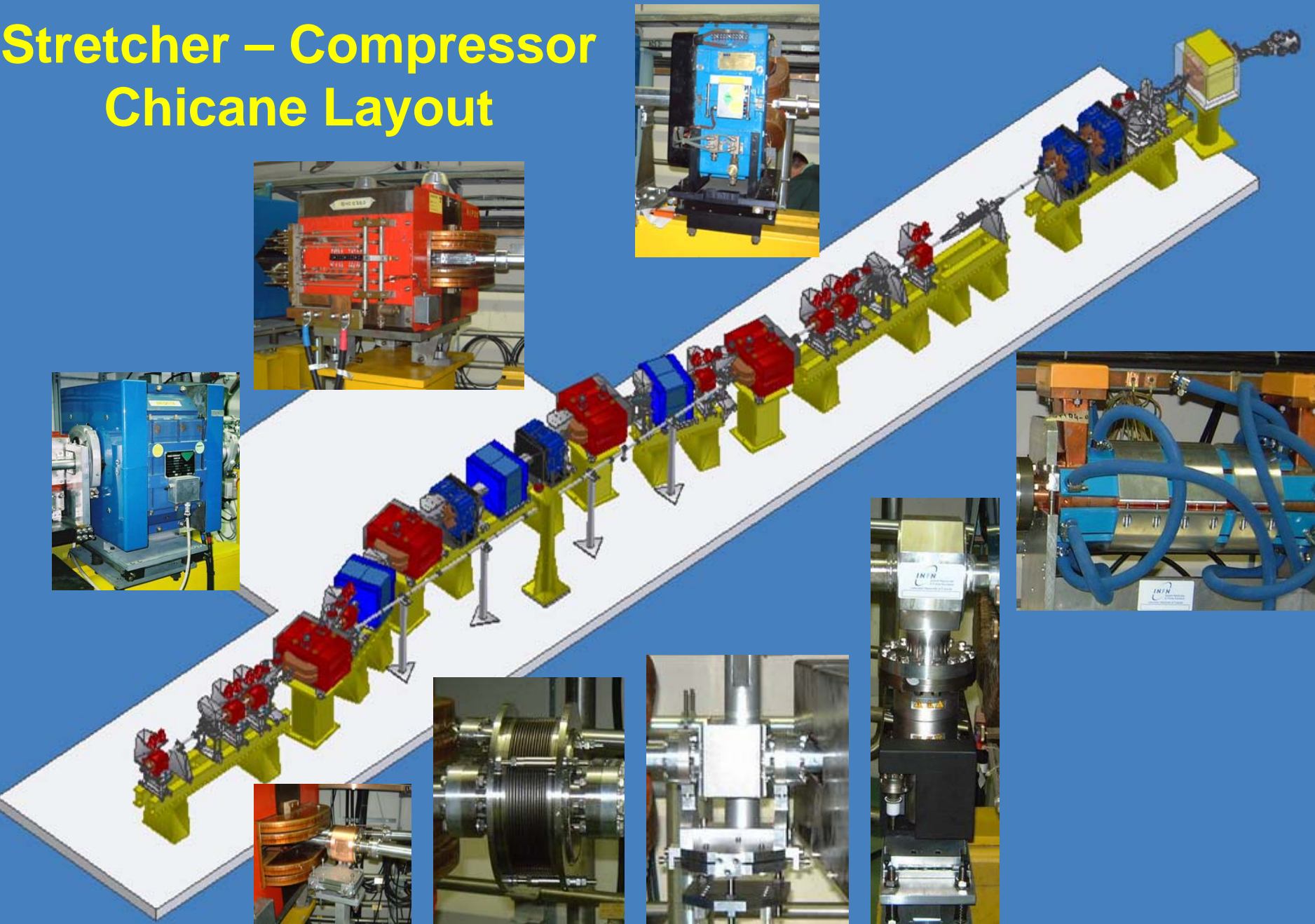
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Accelerator Division Technical Staff

CT installation sequence

- **Feb. 2004:** mark out in the tunnel, list of magnets and supports
- **Mar.2004:** magnets of the chicane transferred in the tunnel and positioned in line to permit the completion of the linac installation
- **May. 2004:** Magnets of the chicane in place, first vacuum test of the vacuum chamber without diagnostics.
- **July 2004:** Installation of diagnostics tools, RF deflector and missing parts; complete test of the vacuum system

Stretcher – Compressor Chicane Layout



February 2004



ОКЦАБ
НАБРЕТ

HR DMZ 48



CHICANE
MAGNET

RADIATION
☸
☸
☸

CHICANE
MAGNET

ININ

CHICANE
MAGNET

CHICANE
MAGNET

ININ

CHICANE
MAGNET



CHICANE GIRDER
6-2-2

CHICANE GIRDER
6-2-2

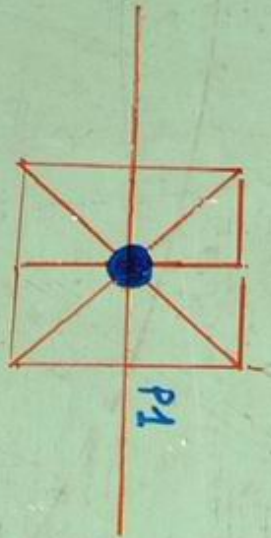
CHICANE GIRDER
6-2-2

CHICANE GIRDER
6-2-2

CHICANE GIRDER
6-2-1

FOR RHZ 50





INFN STARTING
POINT ± 10 MM



CHICANE
MAGNET

HIP20

WARNING

EUR



HIP 20

020

March 2004

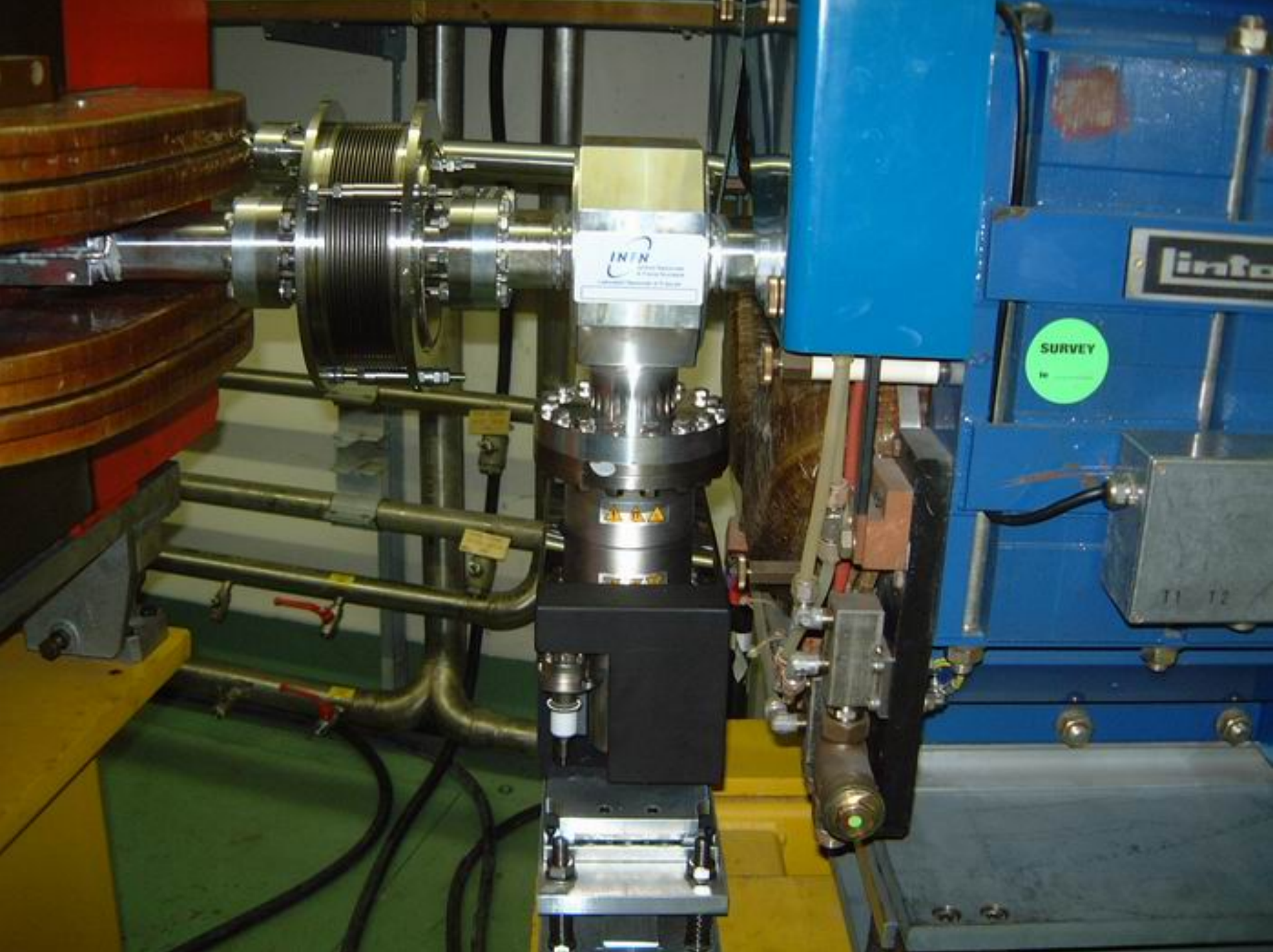


INFN
CHICANE GIRDER
6-2-1



May 2004

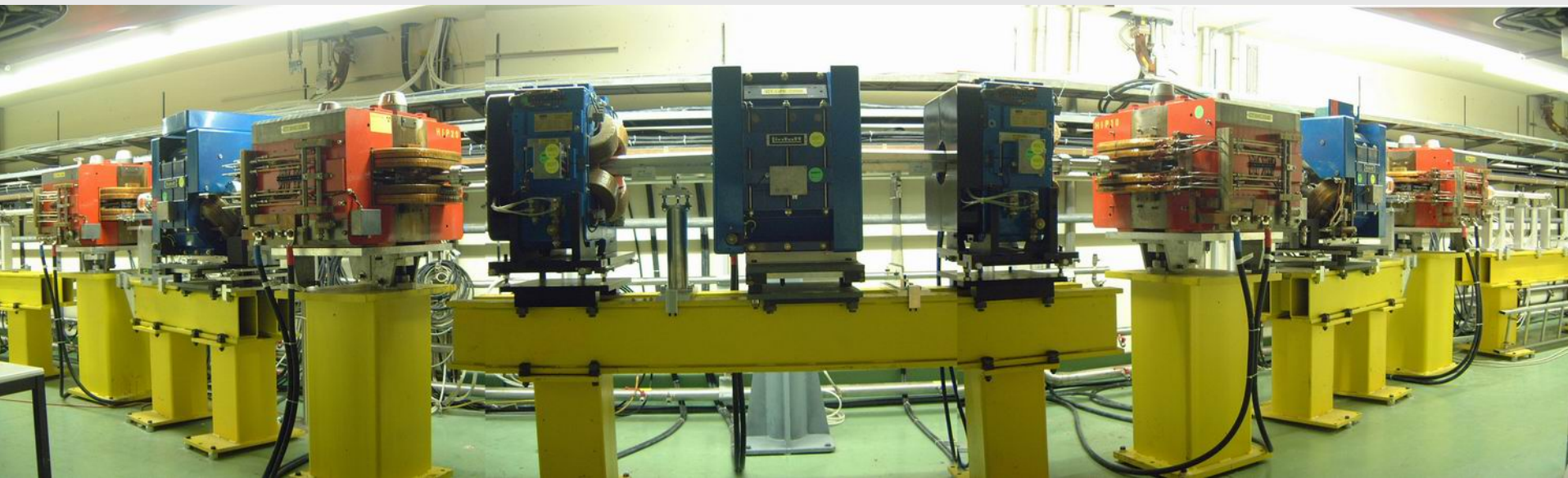






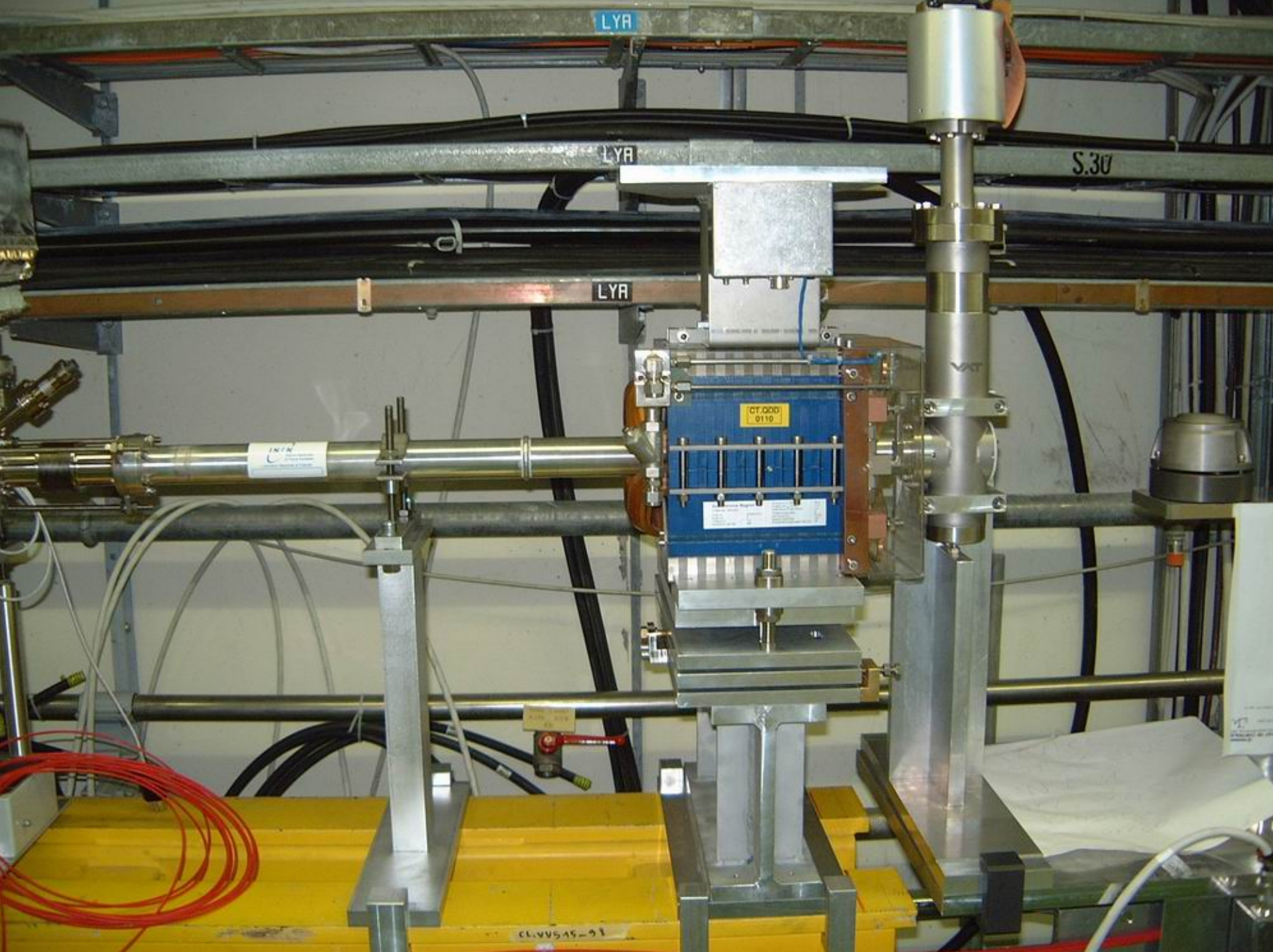


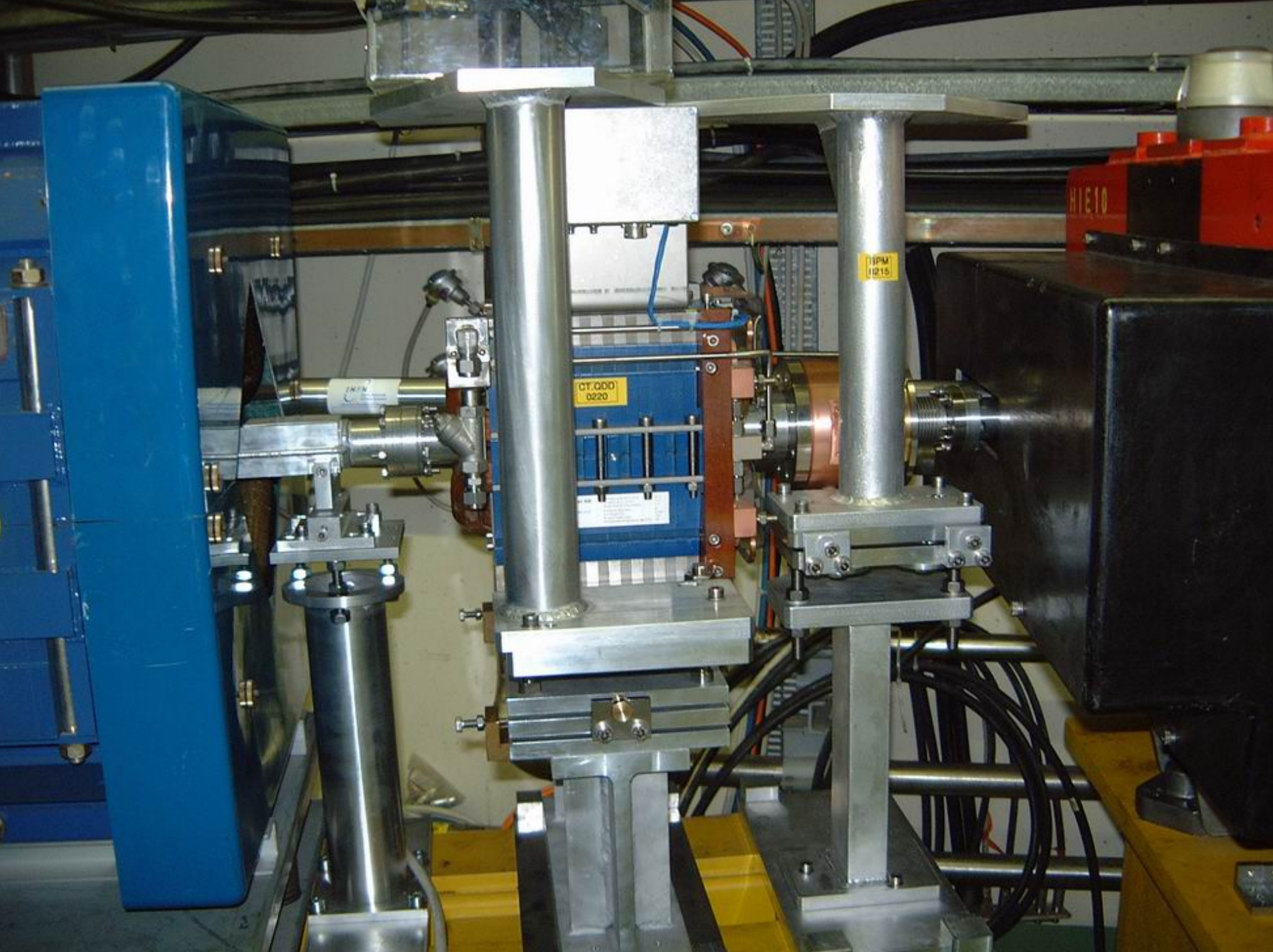


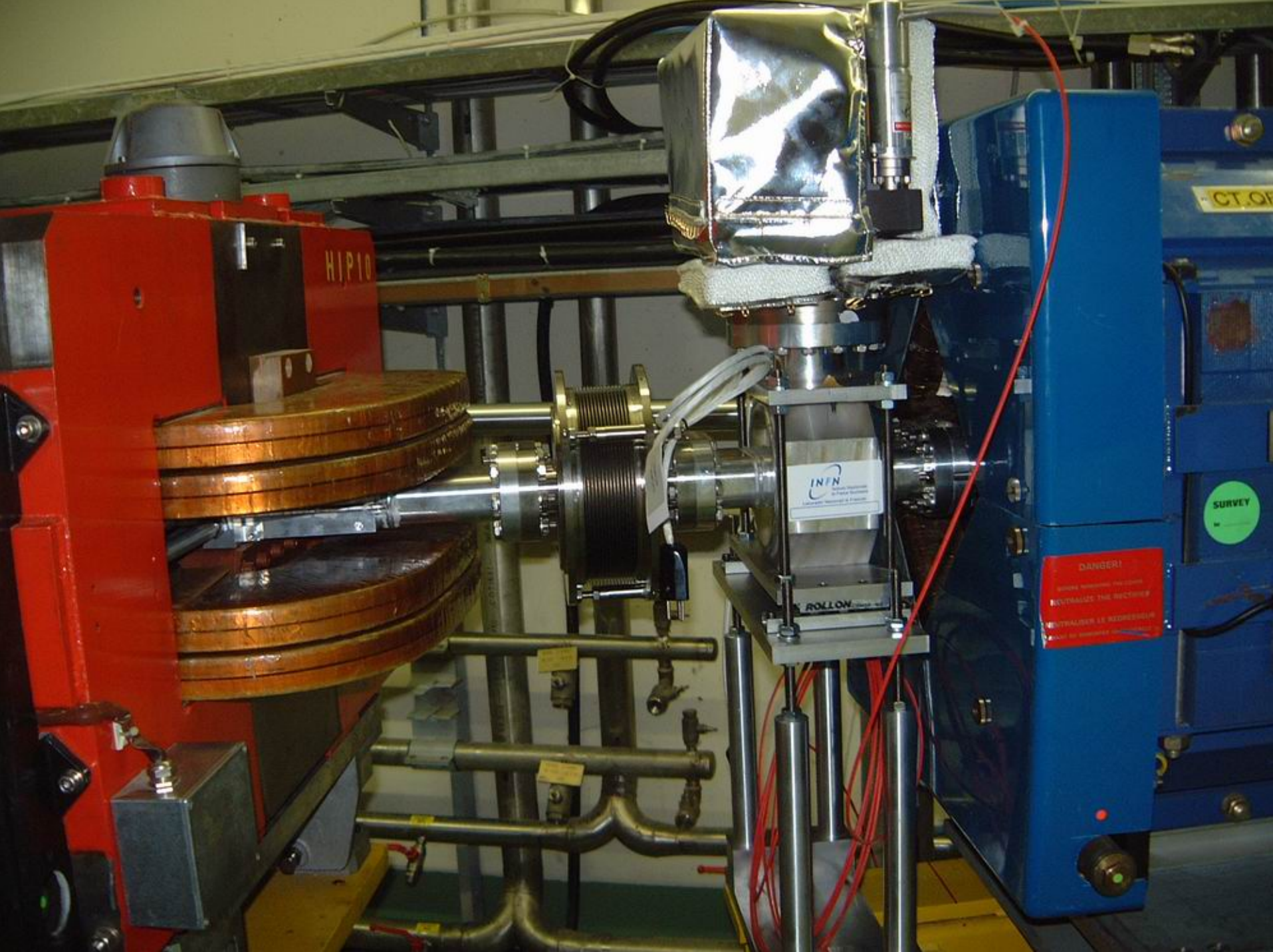


July 2004









HIPO

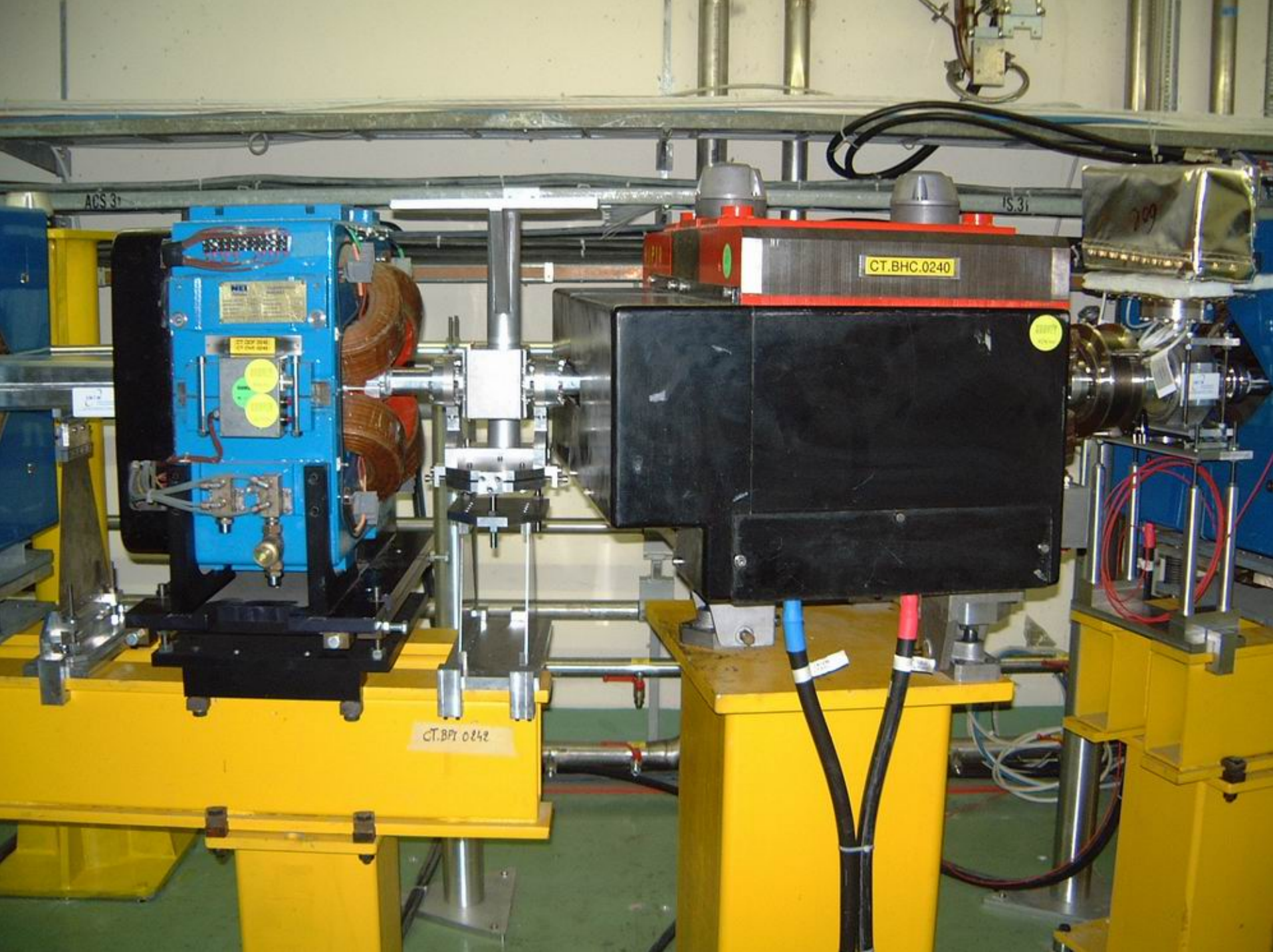
INFN
Istituto Nazionale
di Fisica Nucleare
Laboratori Nazionali di Frascati

ROLLON

CT.01

SURVEY

DANGER!
Evitare l'apertura del forno
NEUTRALIZE THE REACTOR
NEUTRALISER LE REACTEUR
avant de commencer l'opération



CT.BHC.0240

CT.BHC.0240

CT.BP1 0242

ACS 3

IS.31



CT.QFE.0250

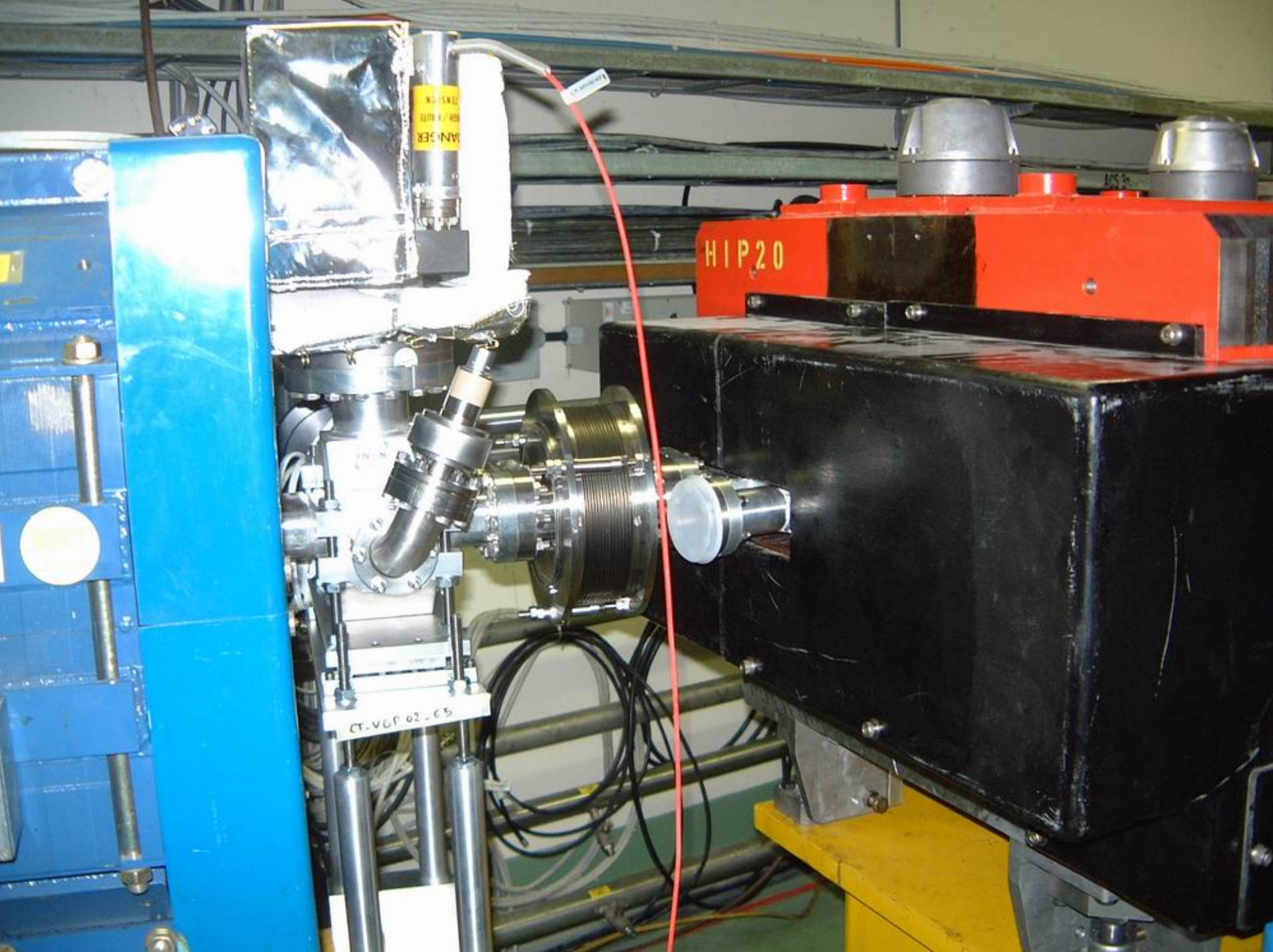
Linfatt

000000

000000

HIP10

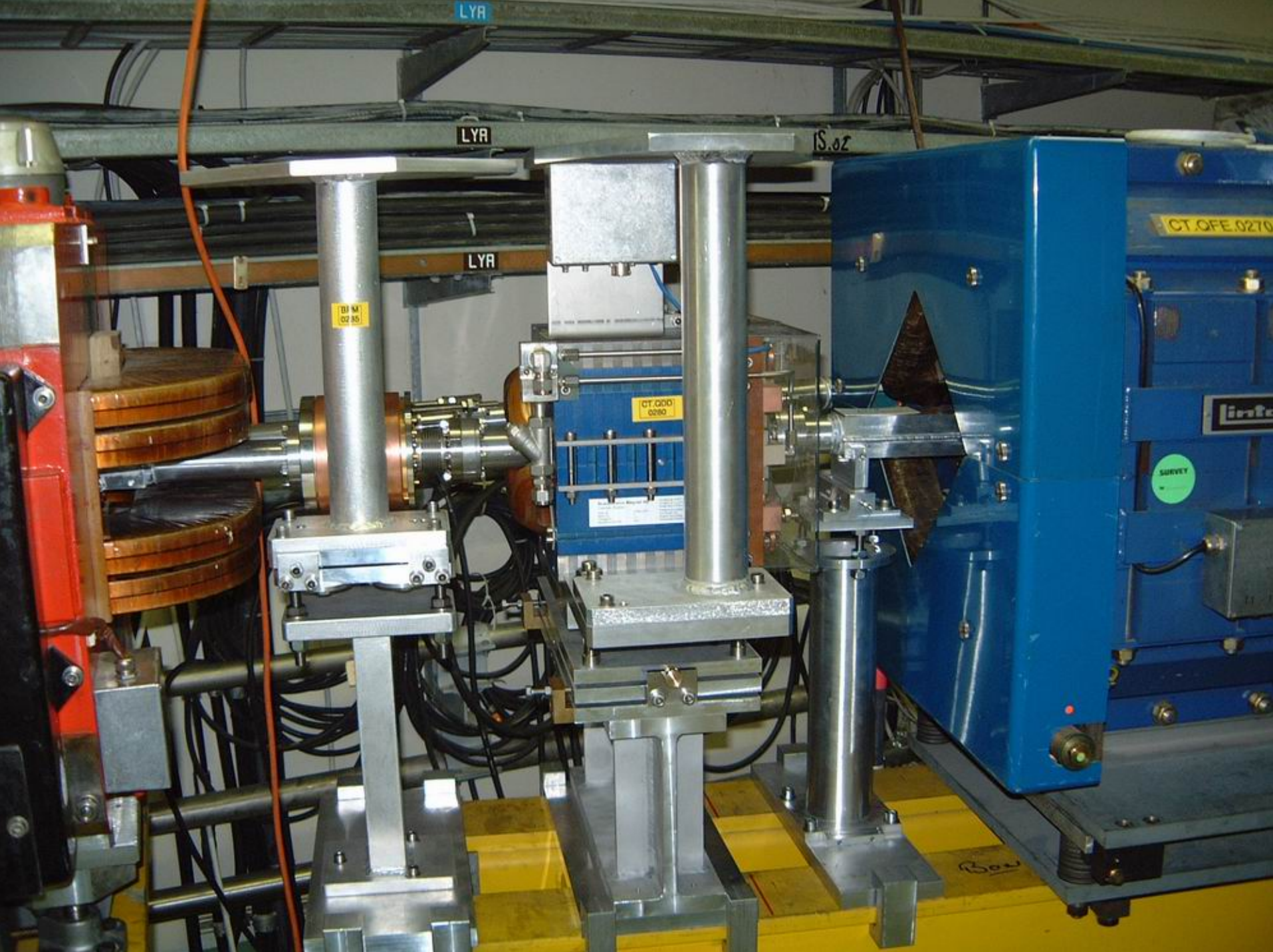
CT.37.044



HIP20

CT-VGP 02-65

MAN-ER
SER 7-1112
DIN 5015



LYR

IS.02

LYR

B.M.
0285

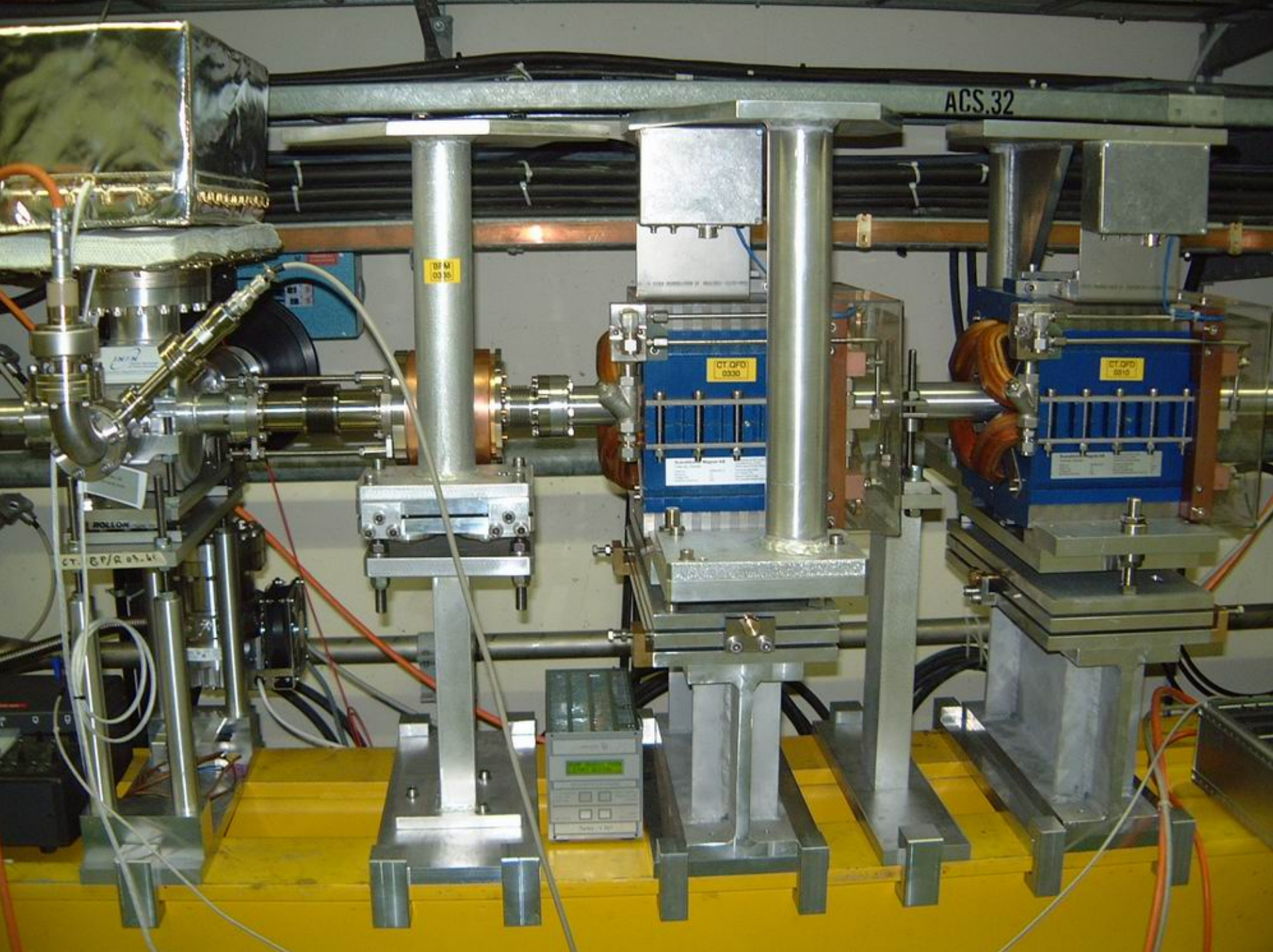
CT.QDD.
0280

CT.QFE.0270

lin

SURVEY

500



ACS.32

CT.M
0315

CT.DFO
0330

CT.DFO
0010

CT: CT/R 03.11

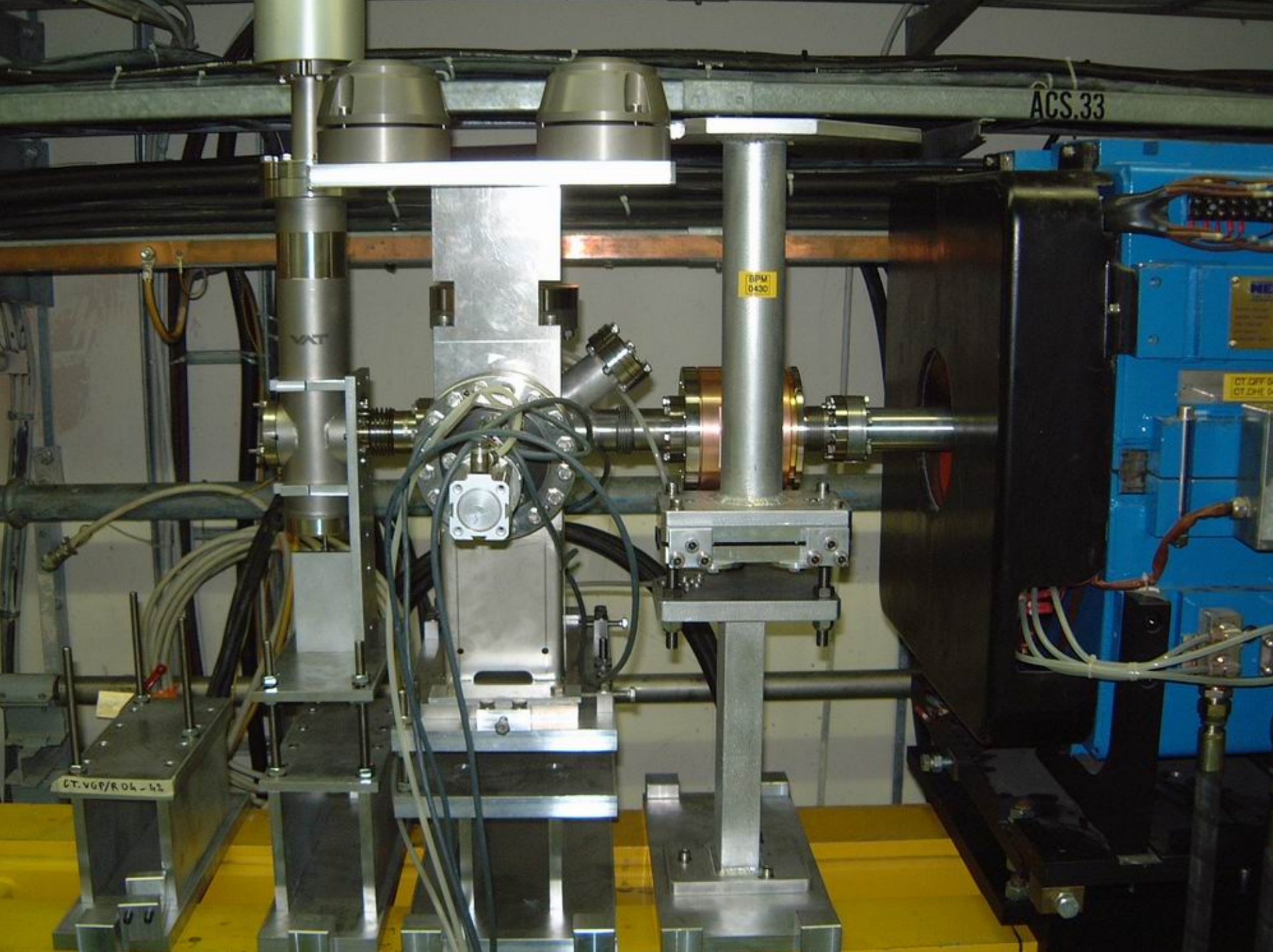




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CT.SDH.0400



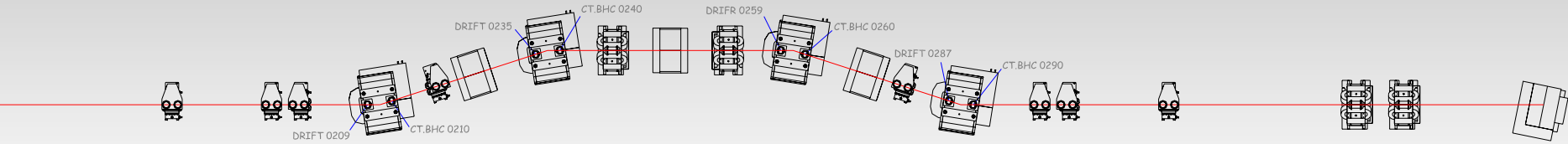
ACS.33

EPM
0450

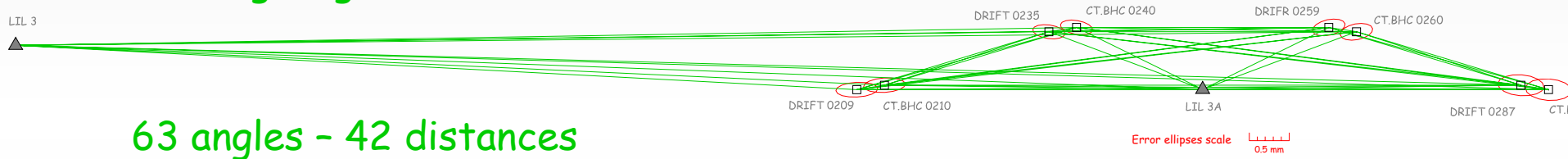
WT

CT.VGP/R04-42

Alignment network



bending magnets network



63 angles - 42 distances



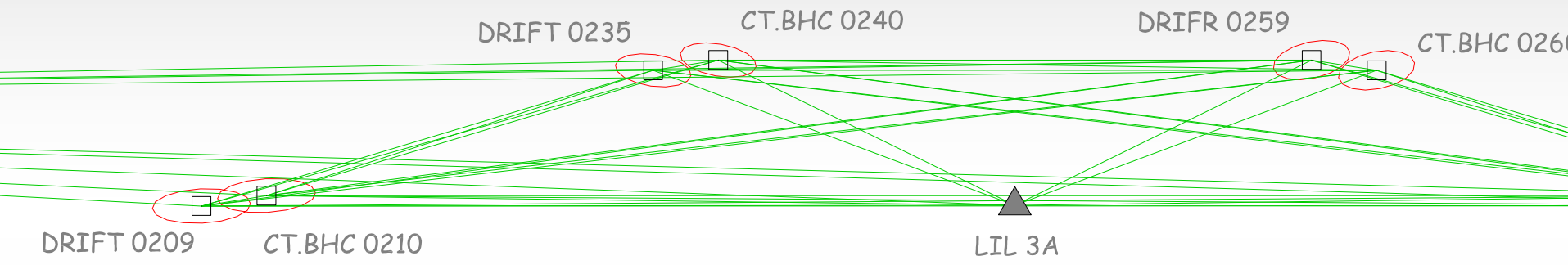
LEICA Total Station TDA5005

angles: $\pm 0.5''$; distances: $\pm 0.2\text{mm}$



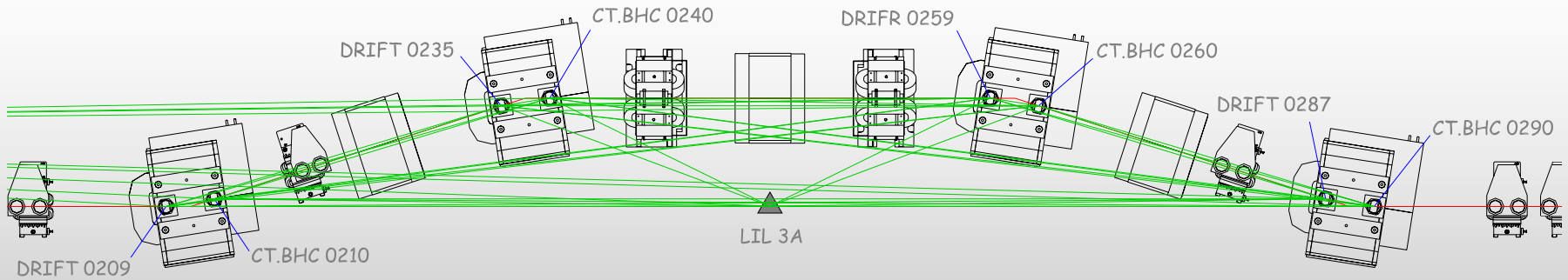
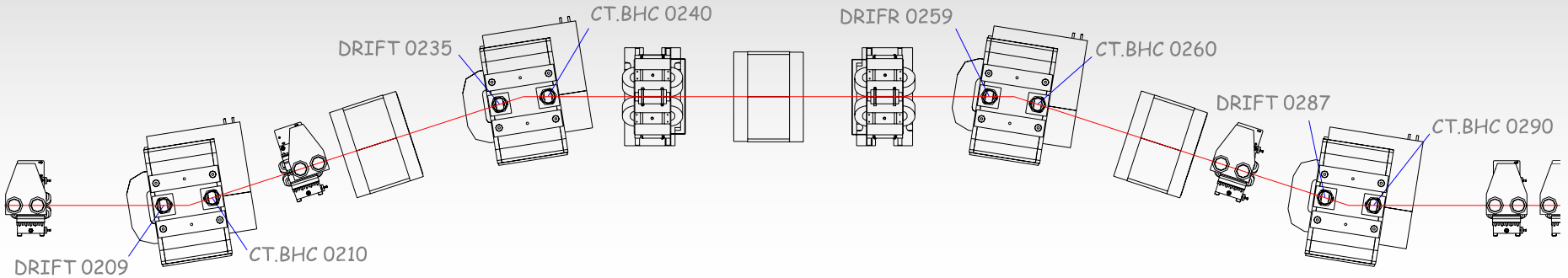
LEICA Level

levels: $\pm 0.02\text{mm}$



Error ellipses scale 
0.5 mm

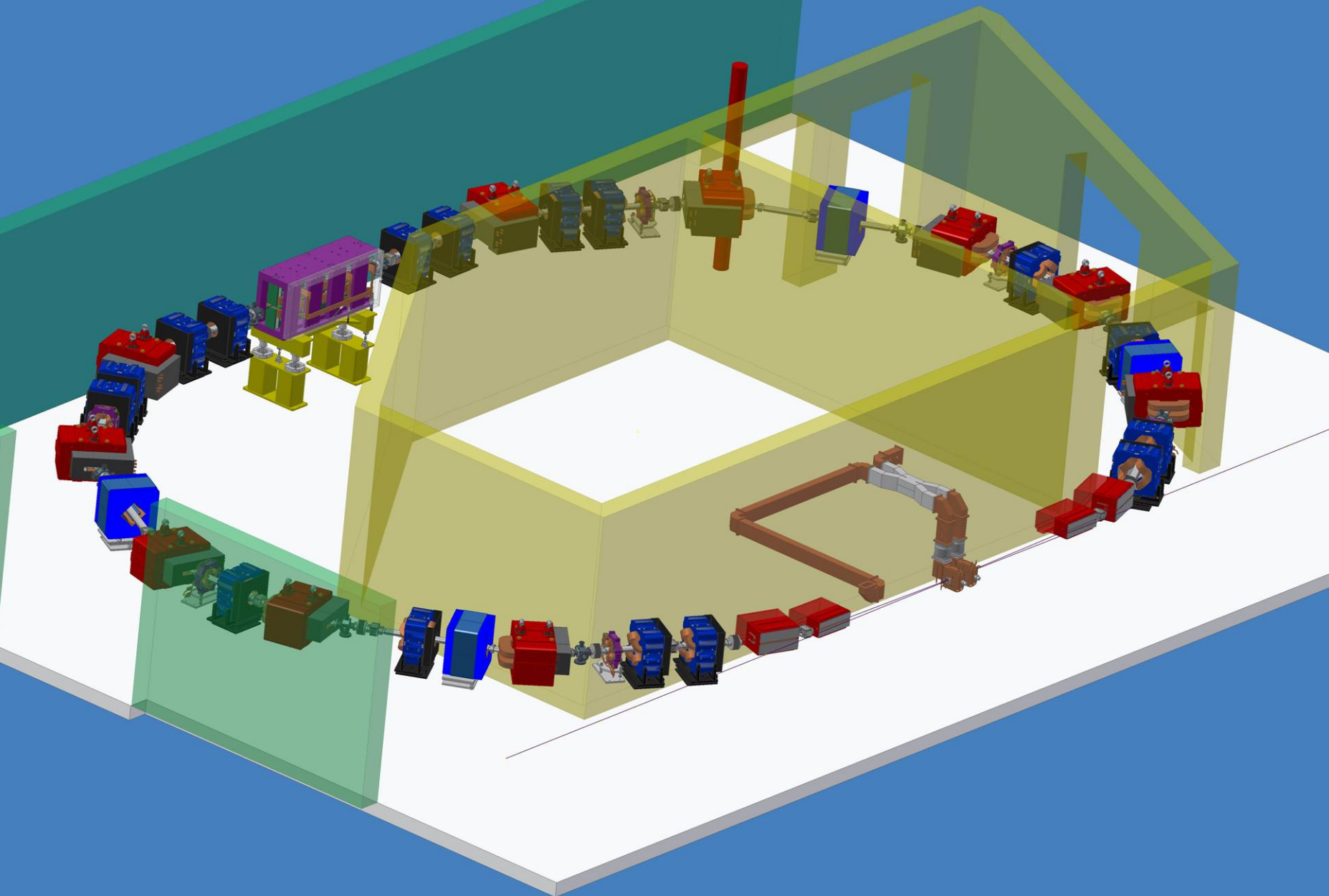
Chicane magnets alignment



- **264 days** of INFN personnel at CERN for preparation and installation of the CT line.
- **104 days** of INFN staff at CERN for lines commissioning, technical discussion and meetings
- **27 days** of INFN staff at conferences and workshop related to CTF3

Status of Delay Loop hardware

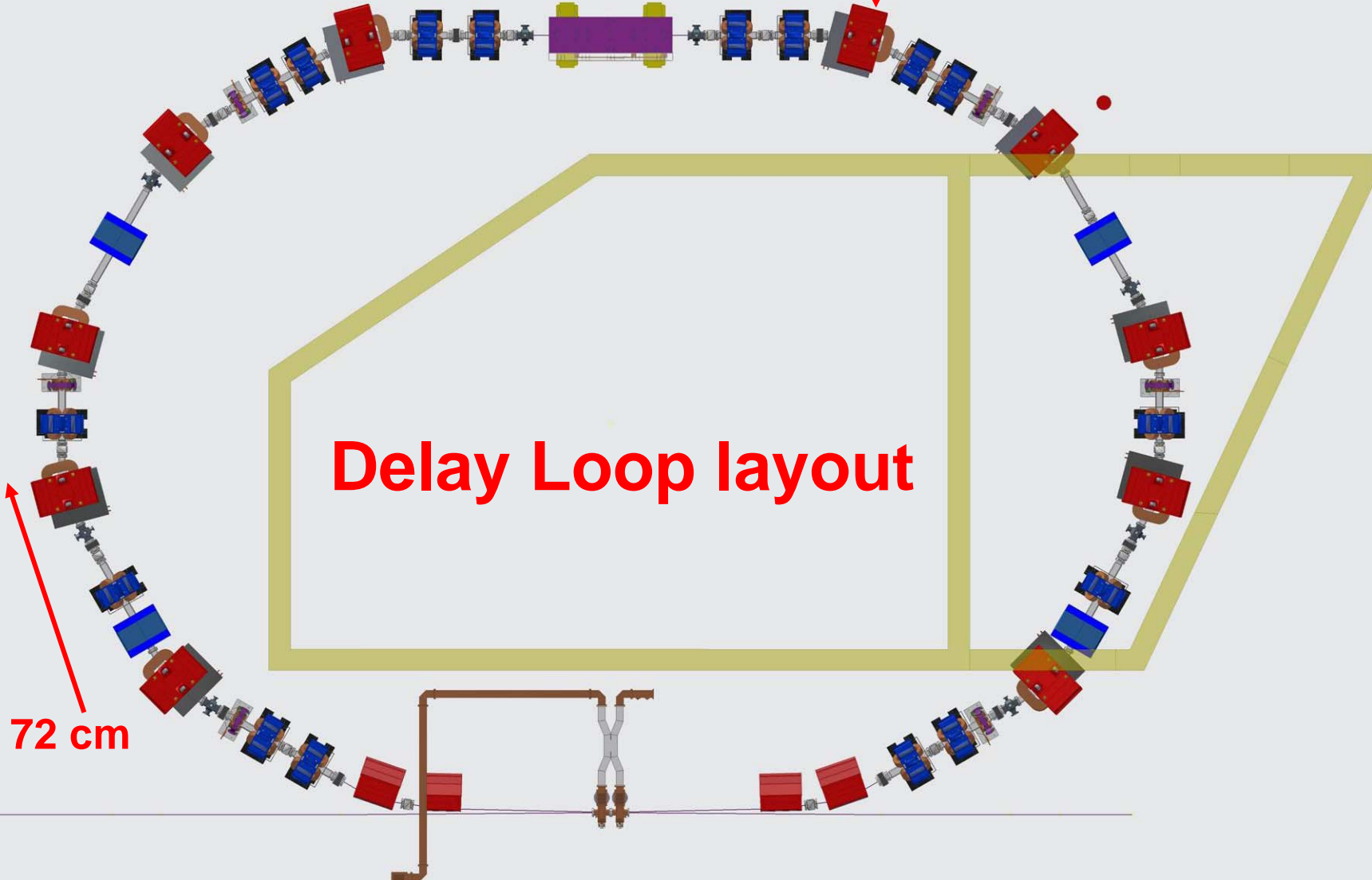
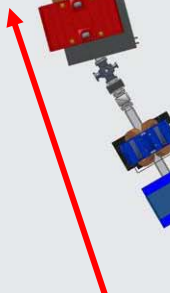
Delay Loop layout in the building



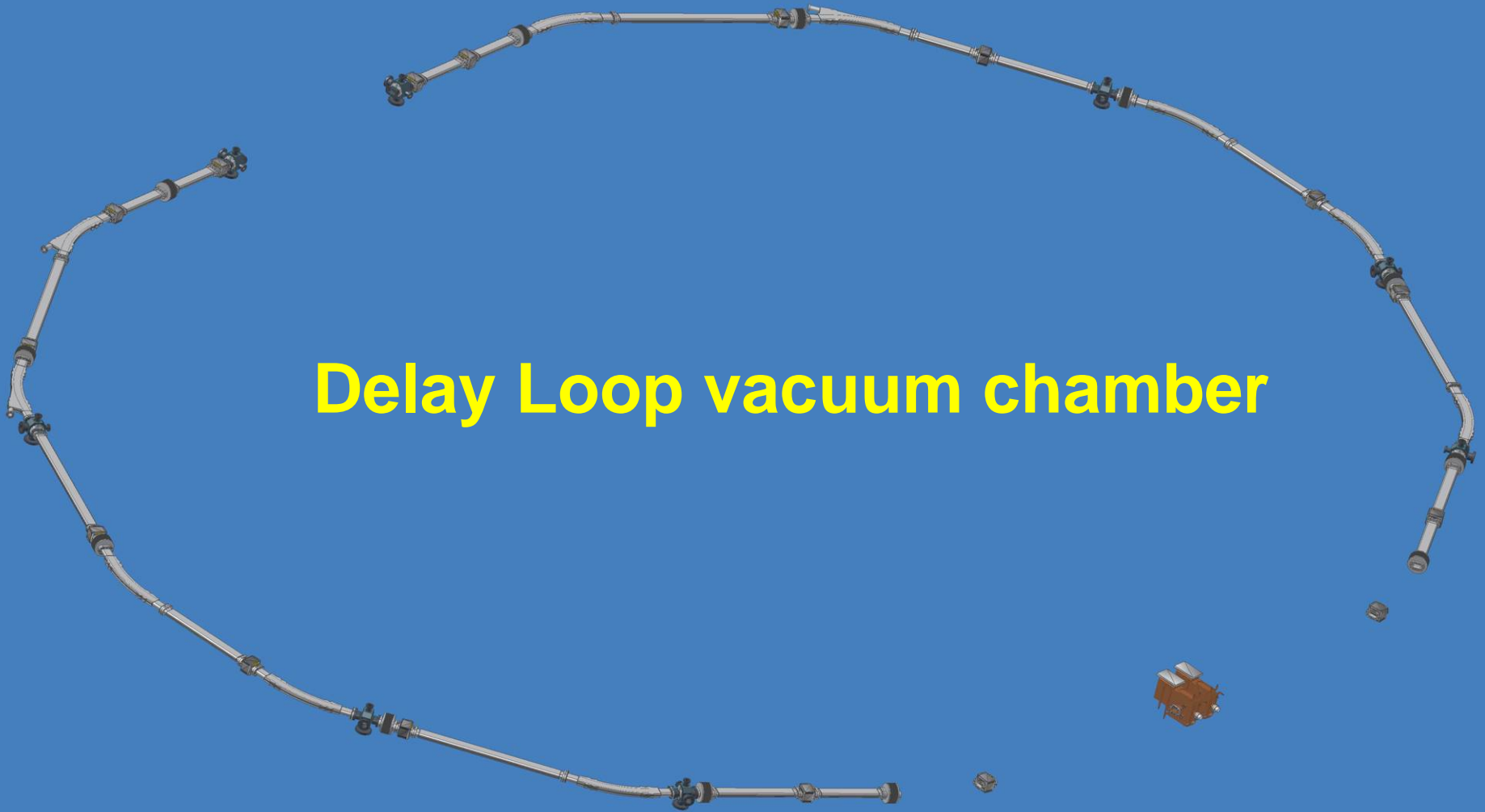
Delay Loop layout

72 cm

110 cm



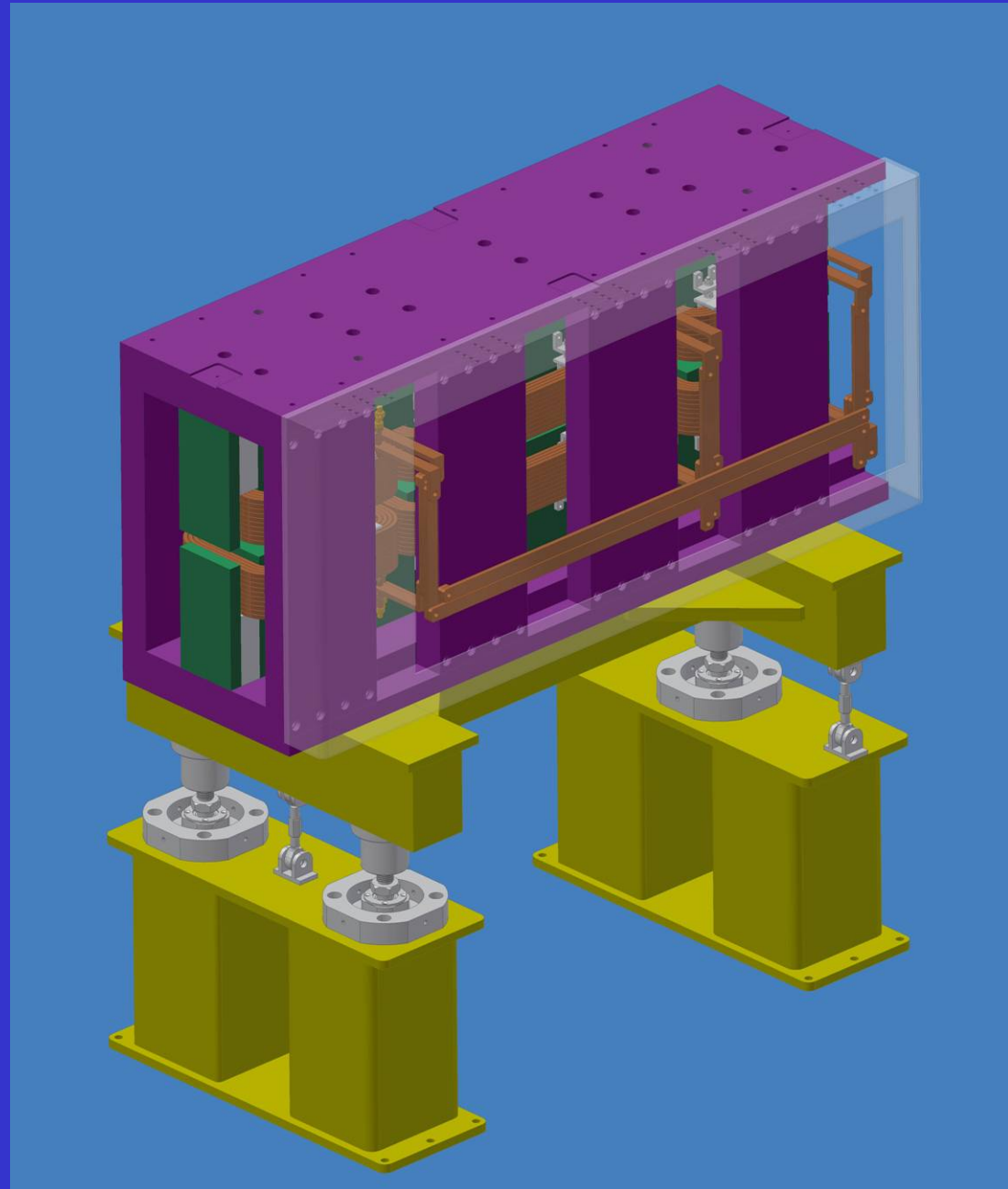
Delay Loop vacuum chamber



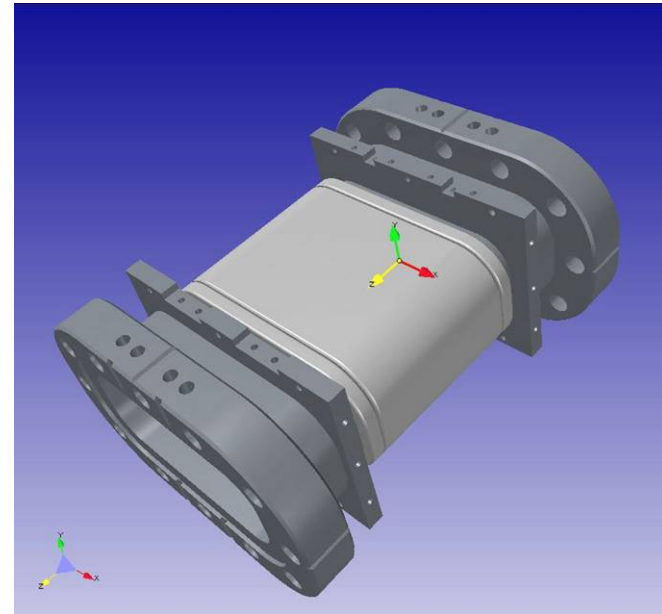
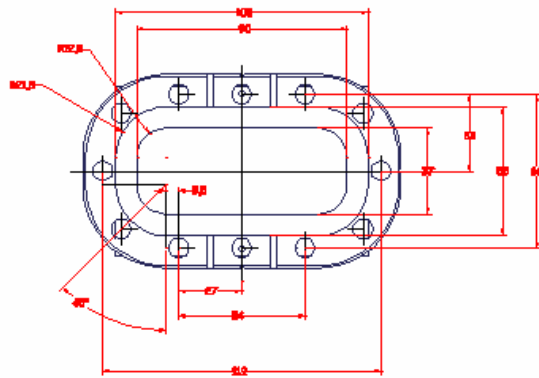
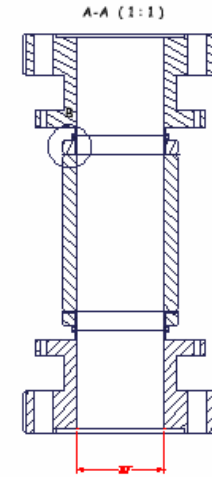
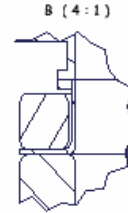
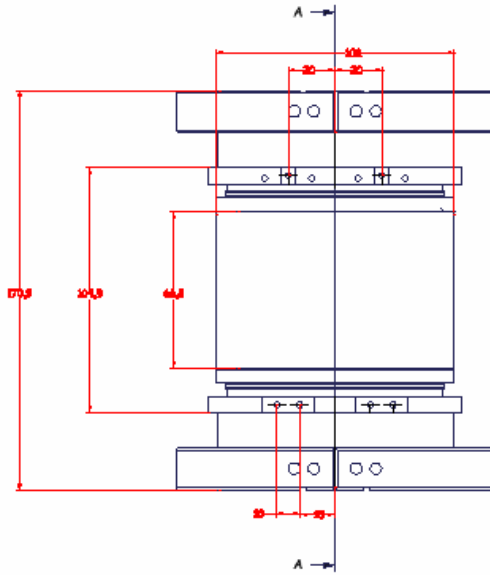
Wiggler magnets

Two Wiggler magnet
have been ordered to
Sigmaphi

- One for the Delay Loop
- One for the
CombinerRing



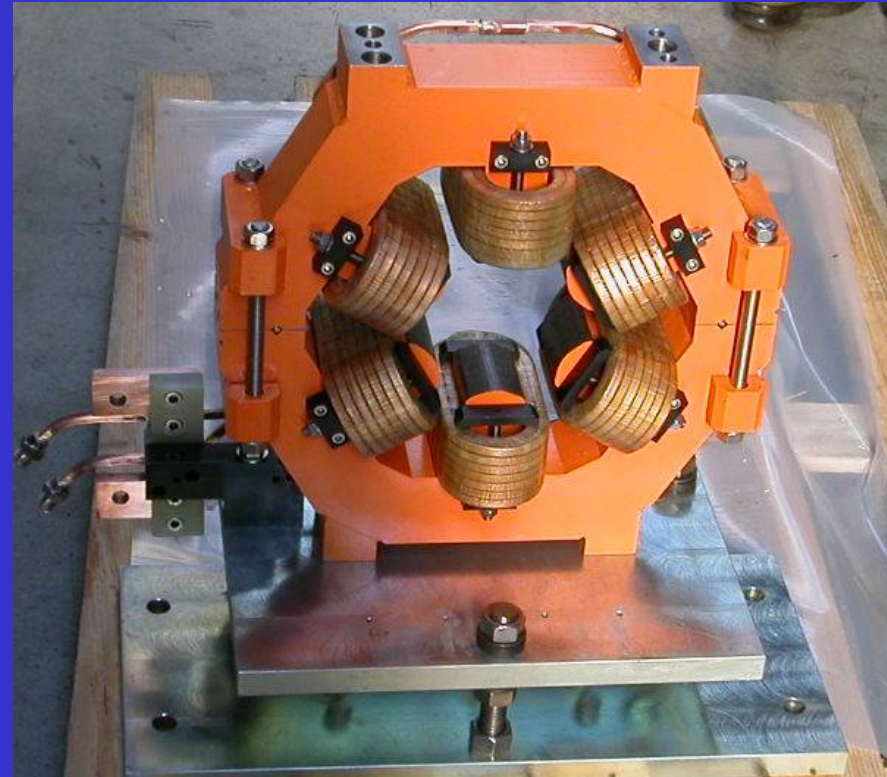
Delay Loop BPM ceramics



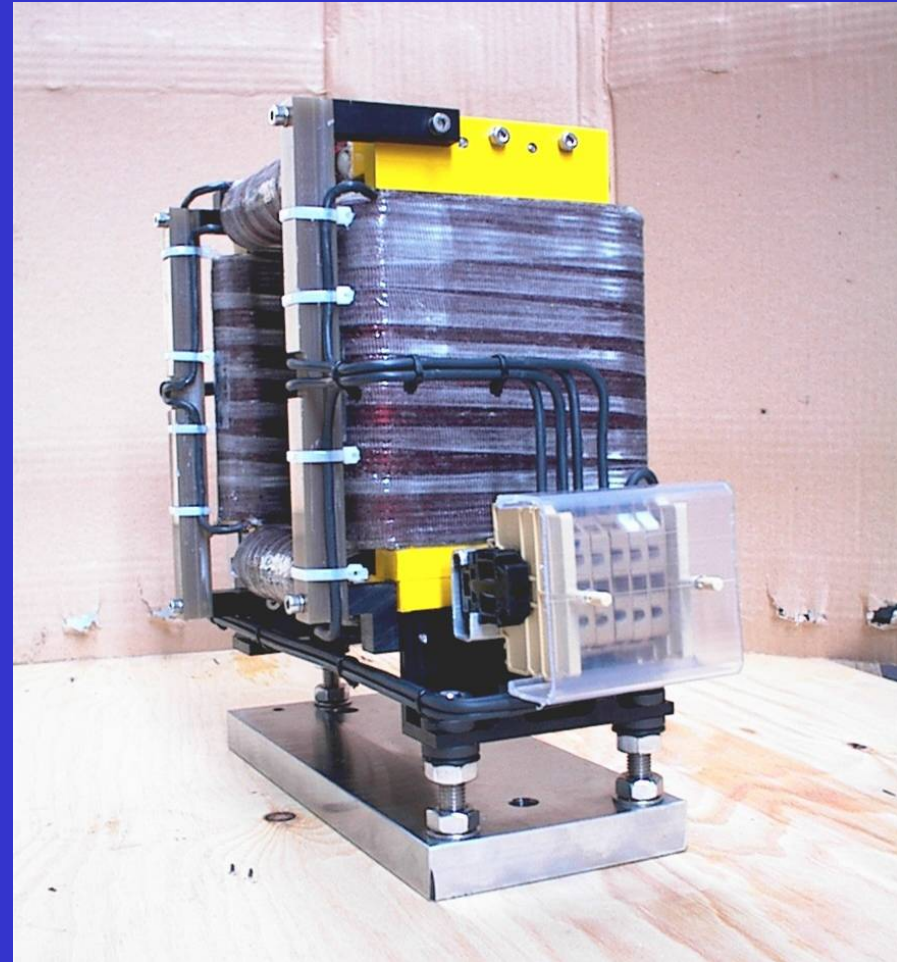
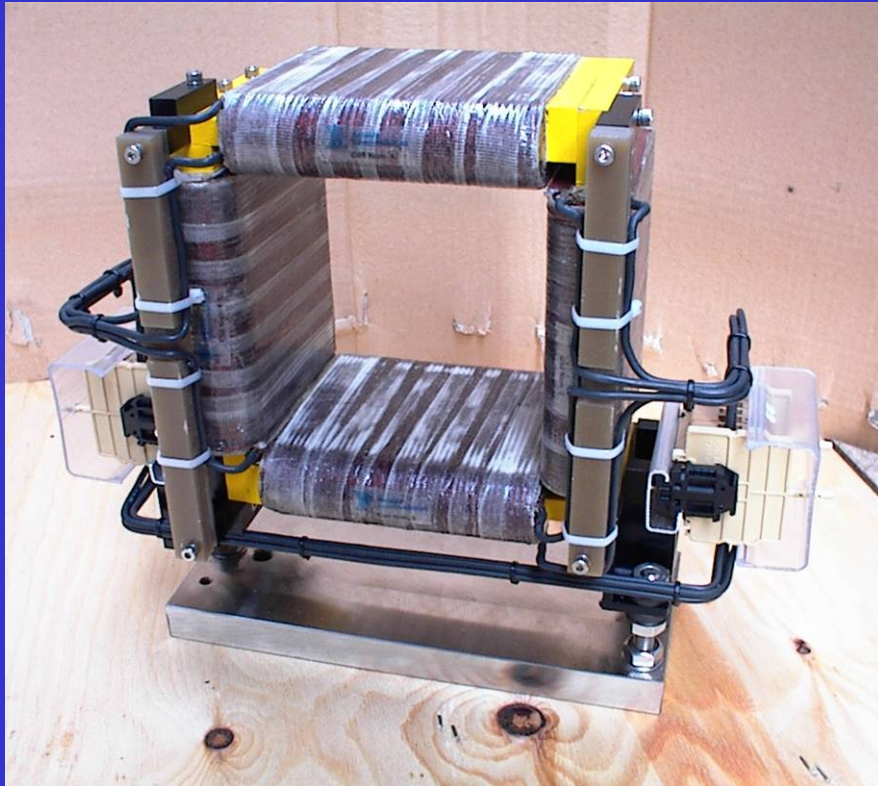
| | |
|---|--|
| NATIONAL INSTITUTE OF NUCLEAR PHYSICS FRASCATI NATIONAL LABORATORY | |
| CFT3 | |
| DELAY LOOP | |

| | | |
|----------|----------|-----------|
| DATE | MATERIAL | WGT/GRM |
| REVISION | QUANTITY | PROJ/NO |
| SUPPLIER | STORAGE | INSURANCE |

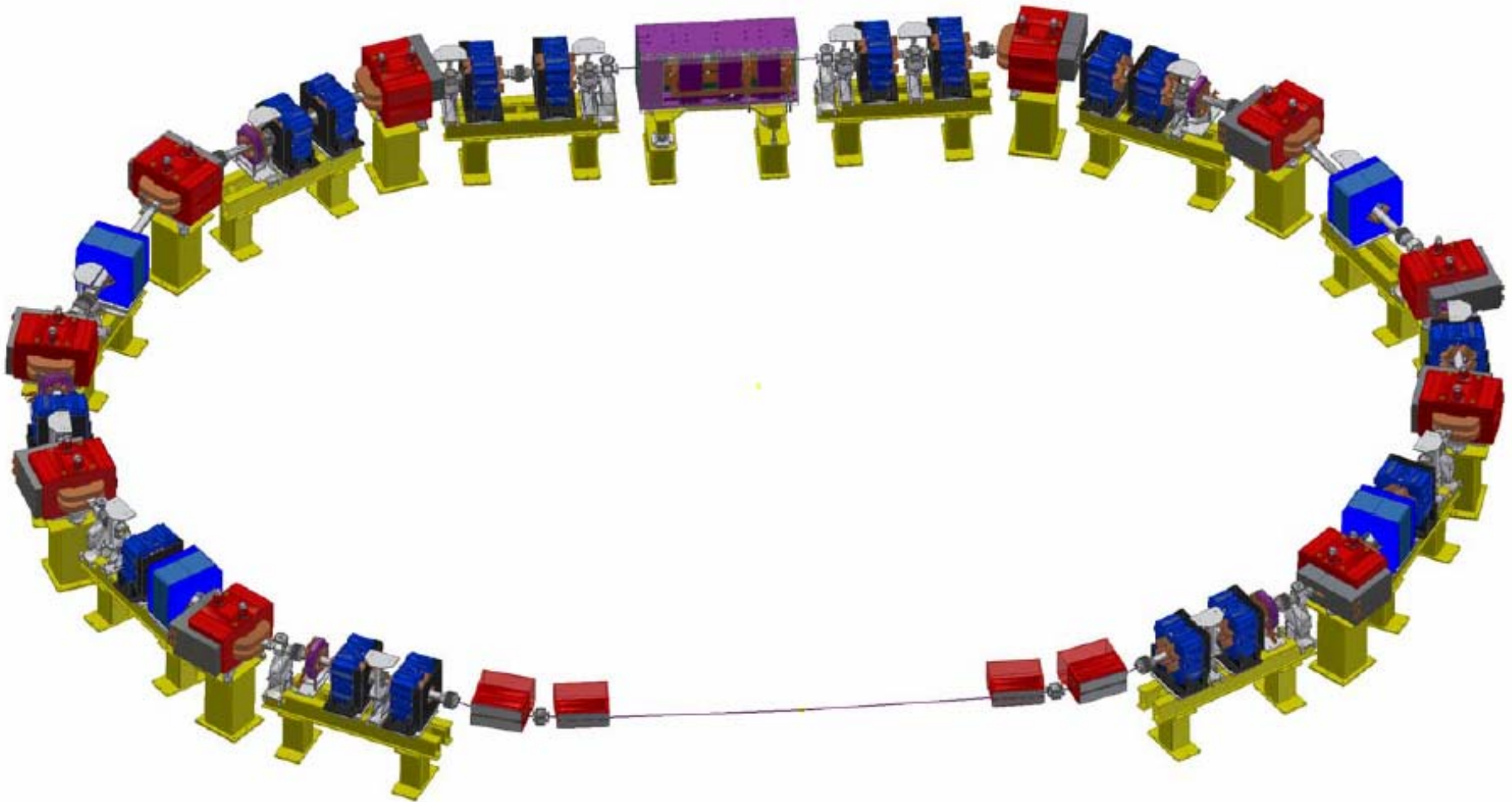
Ansaldo sextupoles



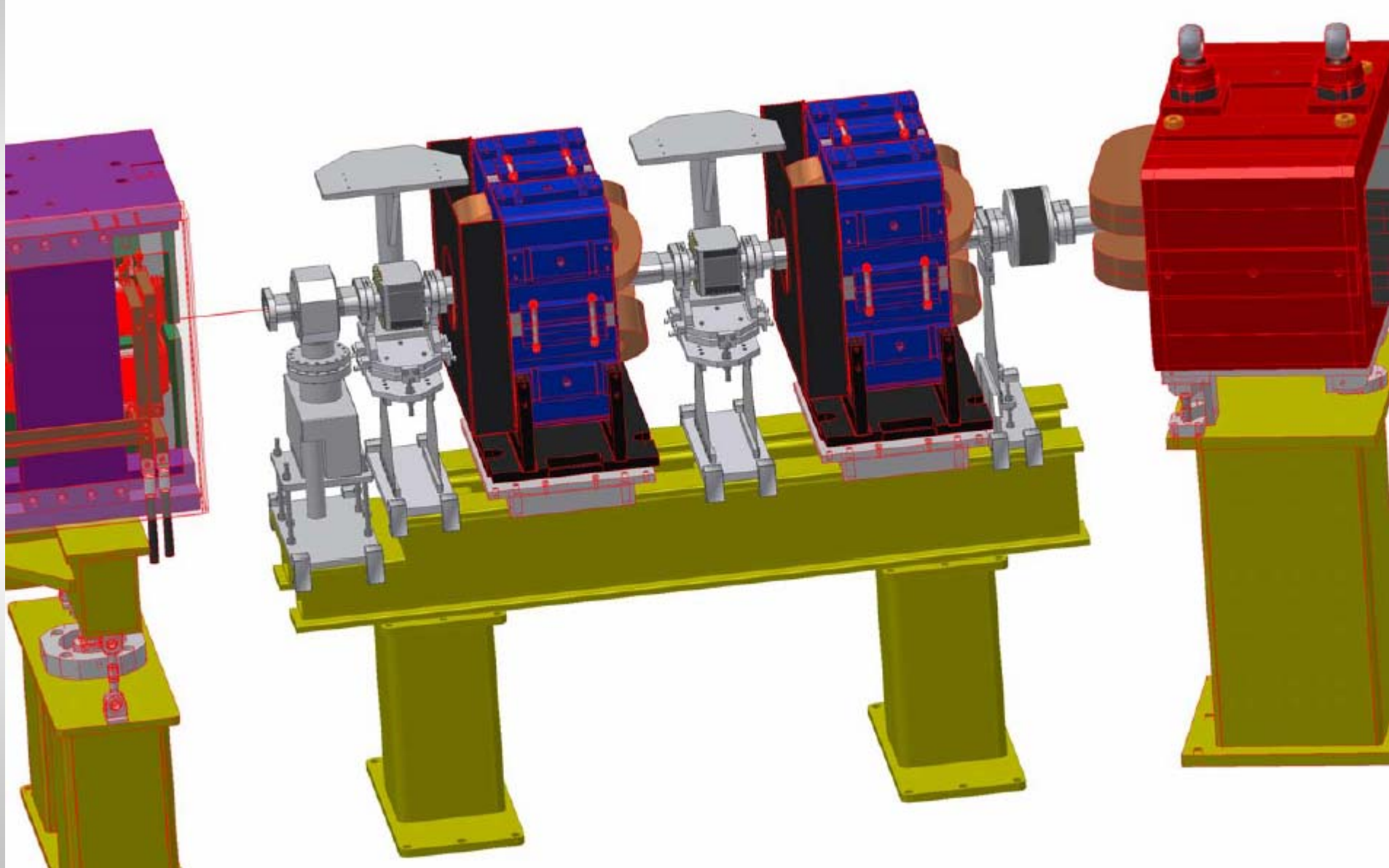
Ansaldo correctors



Delay Loop layout with magnet girders and supports



DL straight section example



| component | drawings | status | delivery | location |
|------------------------|-----------------|----------------|-----------------|-----------------|
| 8 sextupoles | | ordered | Mar-05 | |
| 16 correctors | | ordered | Feb-05 | |
| 2 wiggler | | ordered | jun-05 | |
| dipole supports | | ordered | jan-05 | |
| girders | ready | | jan-05 | |
| VC supports | ready | | Mar-05 | |
| dipole VC | | ordered | Feb-05 | |
| straight VC | | ordered | Feb-05 | |
| pump port | | ready | | LNf |
| valves | ready | | Apr-05 | |
| bellows | | ready | | LNf |
| VC heaters | ready | | | |
| ion pumps | ready | | Apr-05 | |
| Vacuum gauges | ready | | Apr-05 | |
| VC gaskets | | ordered | jan-05 | |

| component | drawings | status | delivery | location |
|-----------------------------|-----------------------|----------------|-----------------|-----------------|
| CPU x digitizer | | ready | | LNF |
| BPM ceramics | | ordered | may-05 | |
| BPM strips and elec. | ready | | may-05 | |
| BPM ferrites | | ready | | LNF |
| wiggler VC | in preparation | | | |
| Septa VC | to be done | | | |
| 1.5 GHz RF deflector | ready | | jun-05 | |
| 1.5 GHz WG | | ordered | Mar-05 | |
| 1.5 GHz windows | | ordered | may-05 | |
| 1.5 GHz load | | ordered | may-05 | |
| BPM digitizer | | ready | | CERN |
| VME crates | | ready | | LNF |