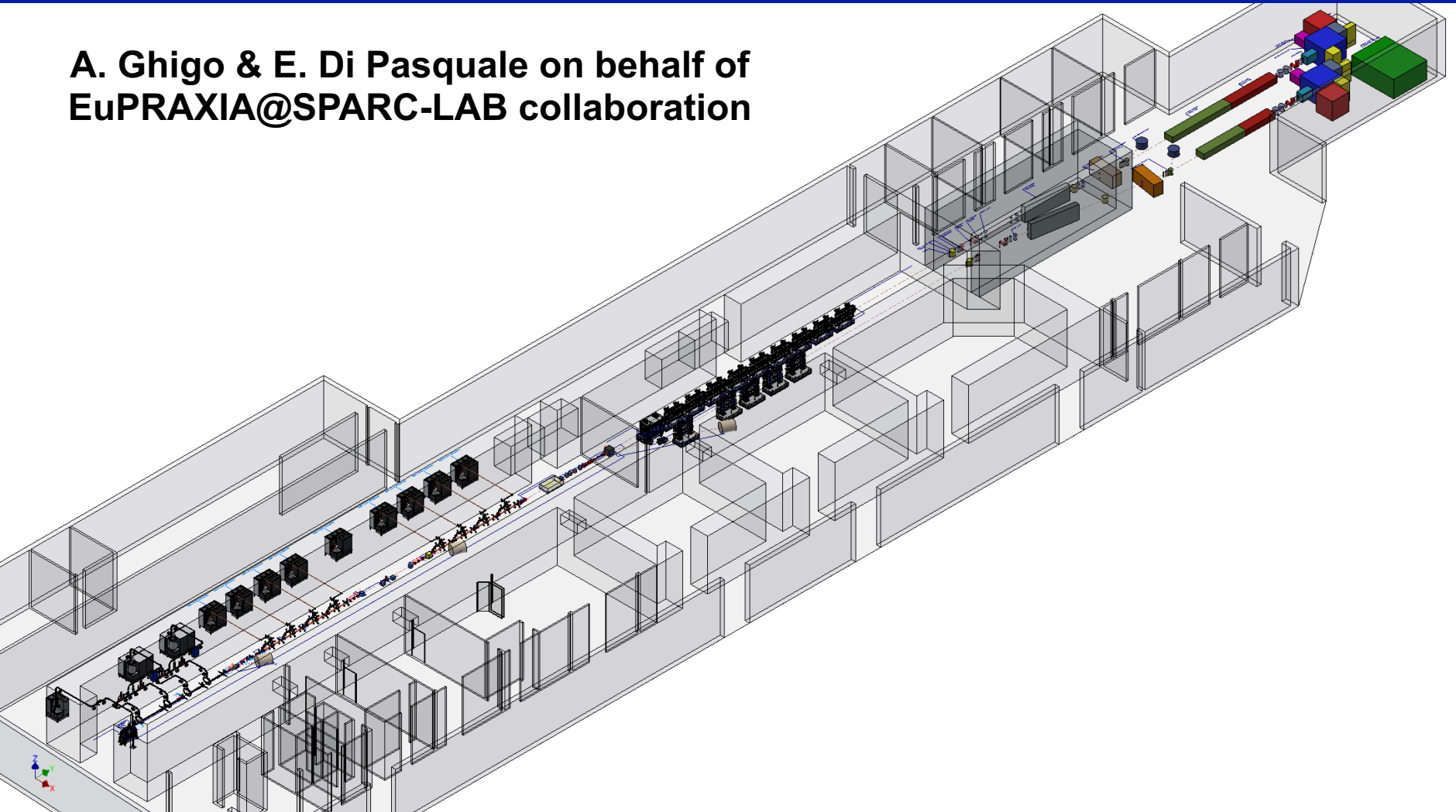


**A. Ghigo & E. Di Pasquale on behalf of
EuPRAXIA@SPARC-LAB collaboration**



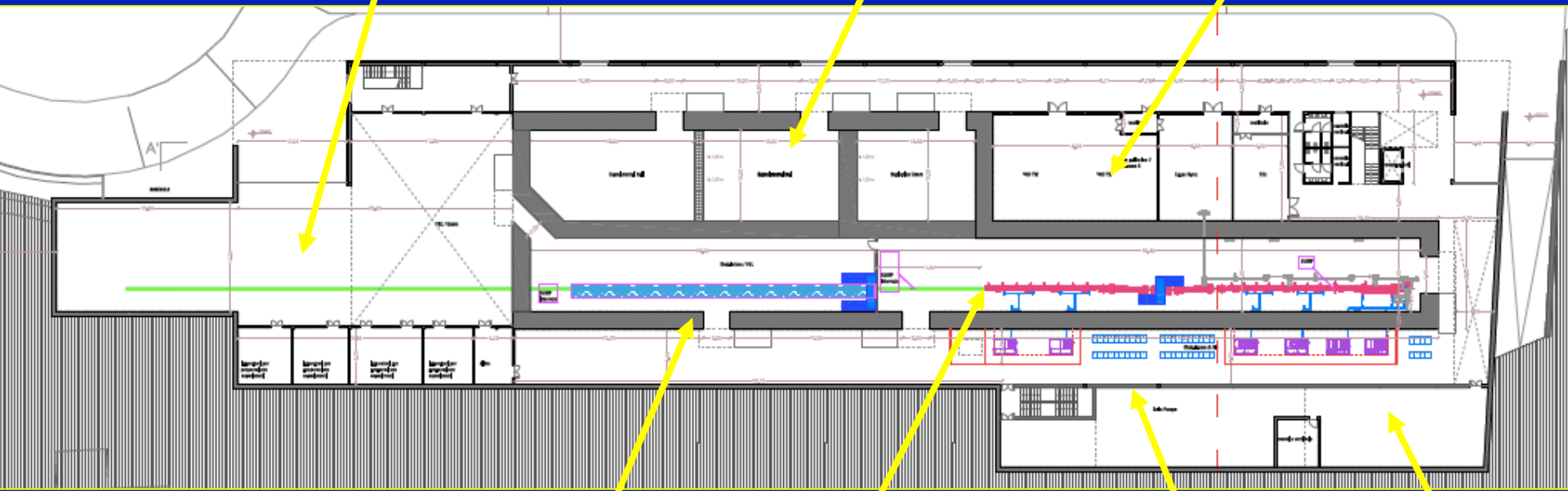
Courtesy MYTHOS cons., S.Incremona, U.Rotundo,



Laser & THz clean rooms

Particle experimental halls

Photon user experimental hall



Undulators tunnel

Accelerator tunnel

Klystron & modulators
Power supplies gallery

Plant gallery

Infrastructure Status

Progress in the design finalization and authorization process.

- **Final Draft** is under the process of **VALIDATION**.
- **Mythos Consortium**, the external designer, is expected to be at LNF next week (**5-9/12**) to sign the documents.
- **Cost updated** (due to current geo-political and macroeconomic scenario) to be discussed at management level (GE).

With the final draft we can ask the **Public Works Superintendency** to convene the “**Conferenza dei Servizi**” to obtain the building permit

Courtesy S.Incremona, U.Rotundo

“Conferenza dei Servizi” (Permitting authority Committee) Status

- ✓ Archeological survey : obtained **Formal authorization** on September 15th (preliminary for Landscape)

Informal authorization to proceed with the formal process from

- ✓ Landscape Superintendence
 - ✓ Fire Department
- Once started the process, the Permitting Authority will answer within 90 days (estimation to obtain green light to develop the Detailed Engineering Design for mid/end of **March 2023**)

Courtesy S.Incremona, U.Rotundo

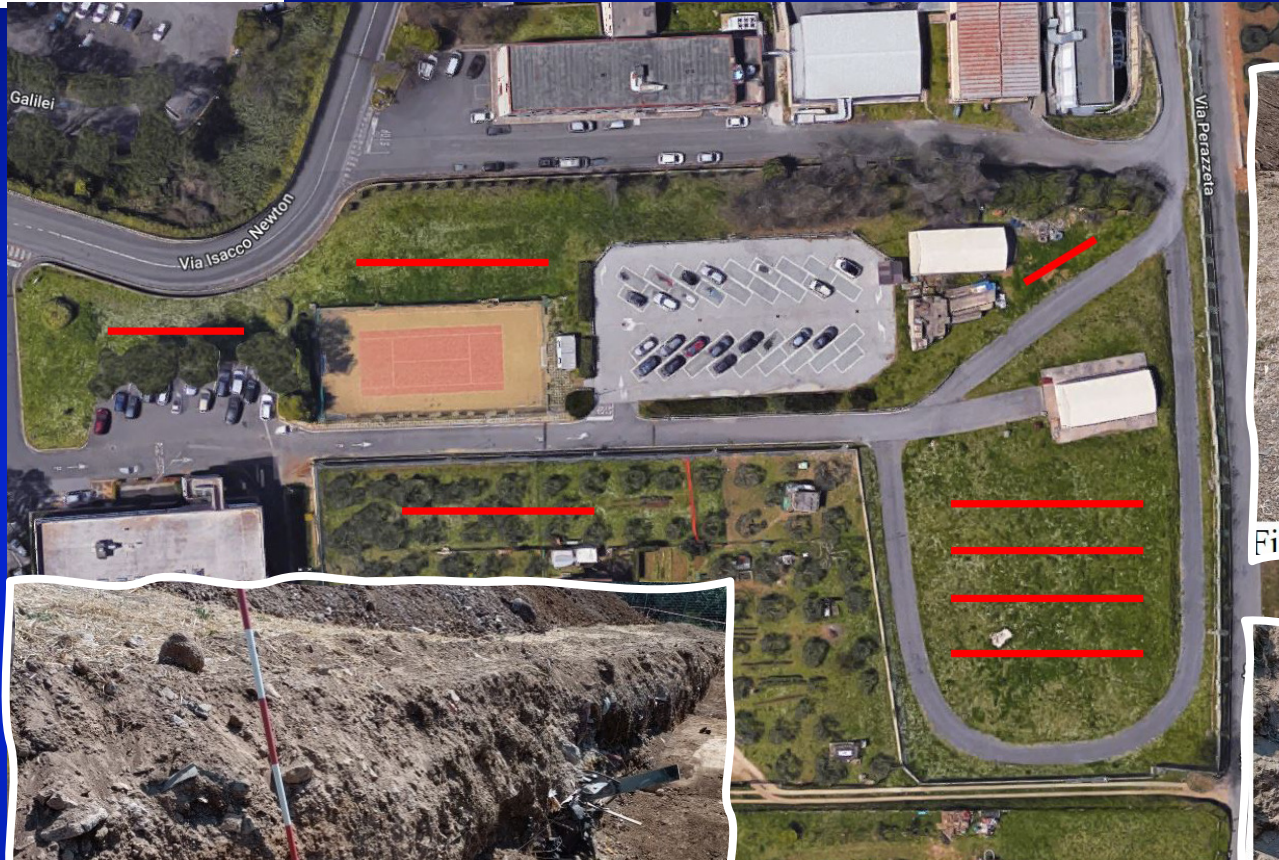


Fig. 12. Sezione SE Trincea n. 2.



Fig. 13. Panoramica Trincea n. 3.



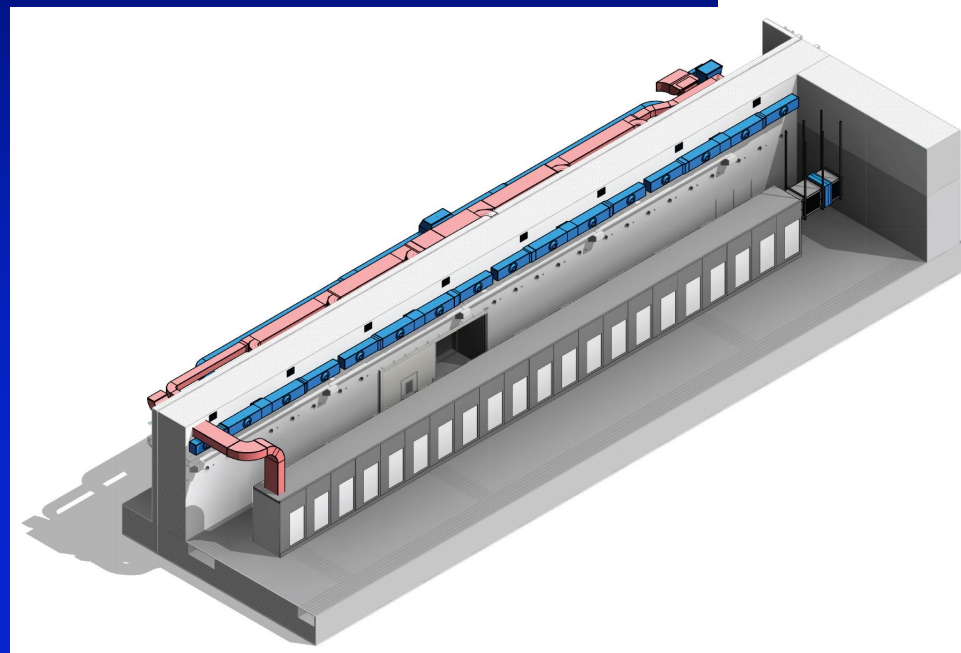
Fig. 14. Sezione NW Trincea n. 3.

Courtesy S.Incremona,
U.Rotundo

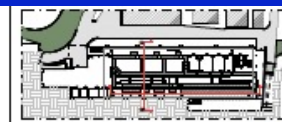
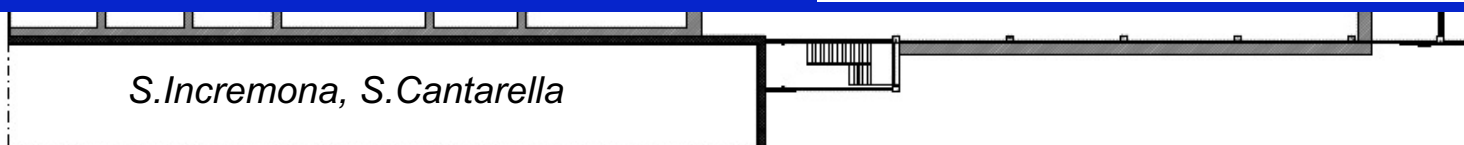
The building: Linac & undulator areas

Undulator area

Building drawing of final draft with air cooling distribution



Linac area




INFN Istituto Nazionale di Fisica Nucleare
Laboratori Nazionali di Frascati

PROGETTO DEFINITIVO
Realizzazione di un nuovo complesso edificio EuPRAXIA per ospitare
la Facility EuPRAXIA presso i Laboratori Nazionali di Frascati

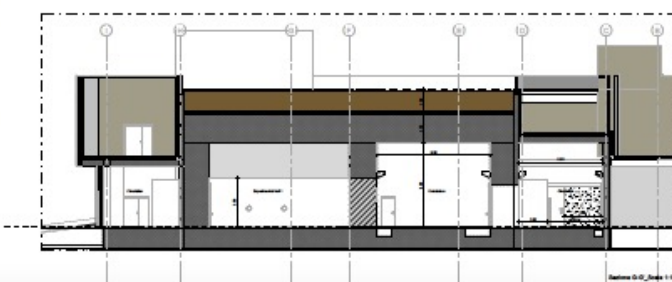
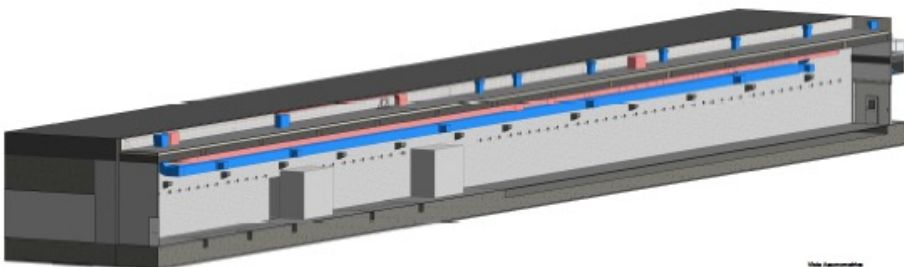
SEDE DEI LAVORI: INFN - Laboratori Nazionali di Frascati
Via Salaria 151 - 00044 Frascati (RM) - Italia

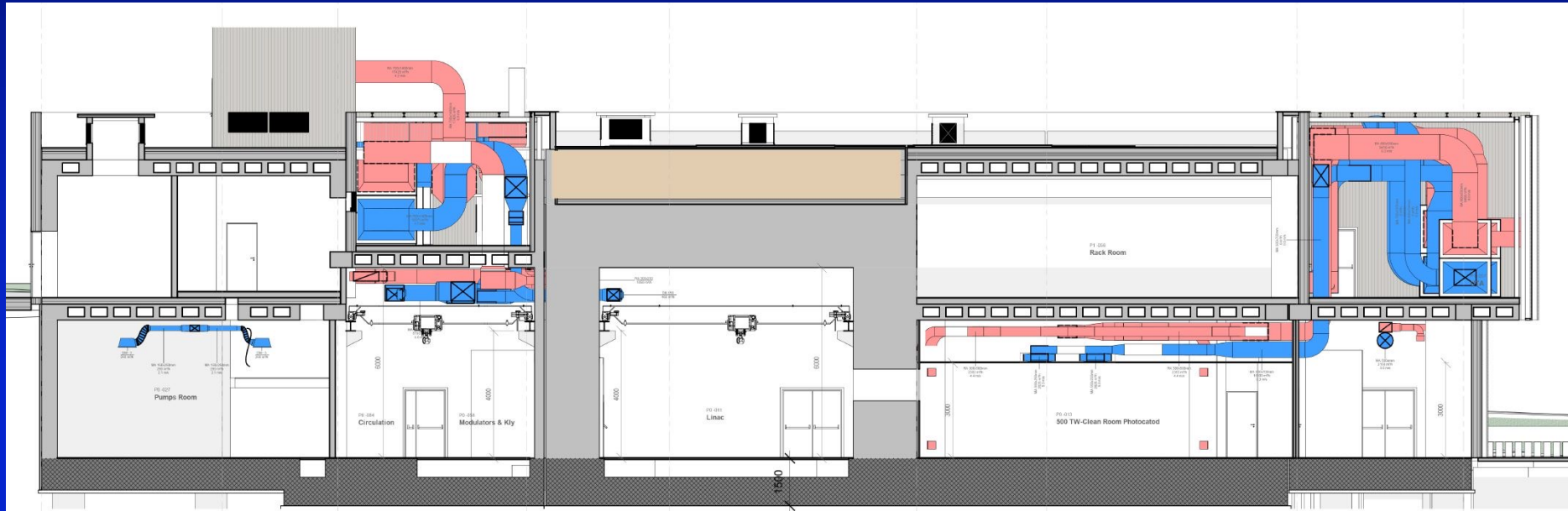
PROGETTISTI: **mytopia**

PROGETTO ARCHITETTONICO
Relazione
Forometria Linac-Ondulatori

01AR.GE.DET.001

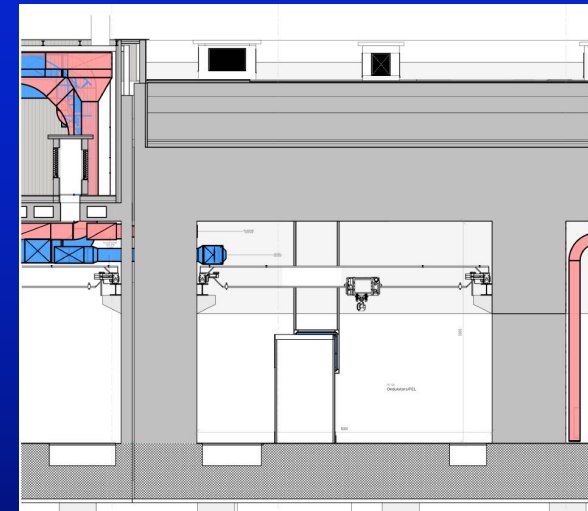
REVISIONI	DATA	CAUSA	PRODOTTORE






















The final version of the definitive project took place after several iterations with the MYTHOS consortium and revisions by our technical division

Courtesy S.Incremona, U.Rotundo and MYTHOS company

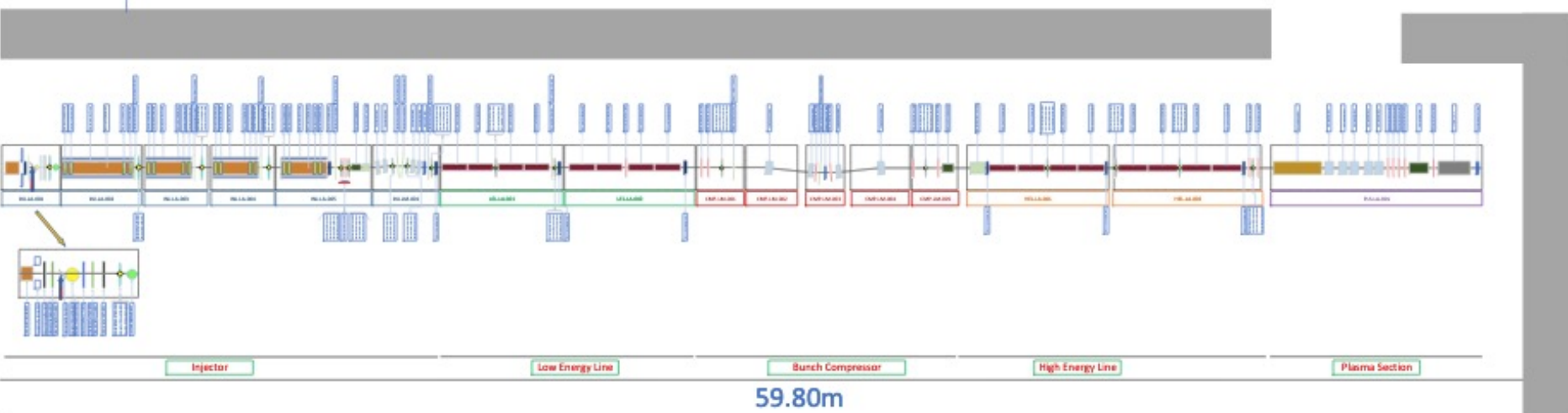


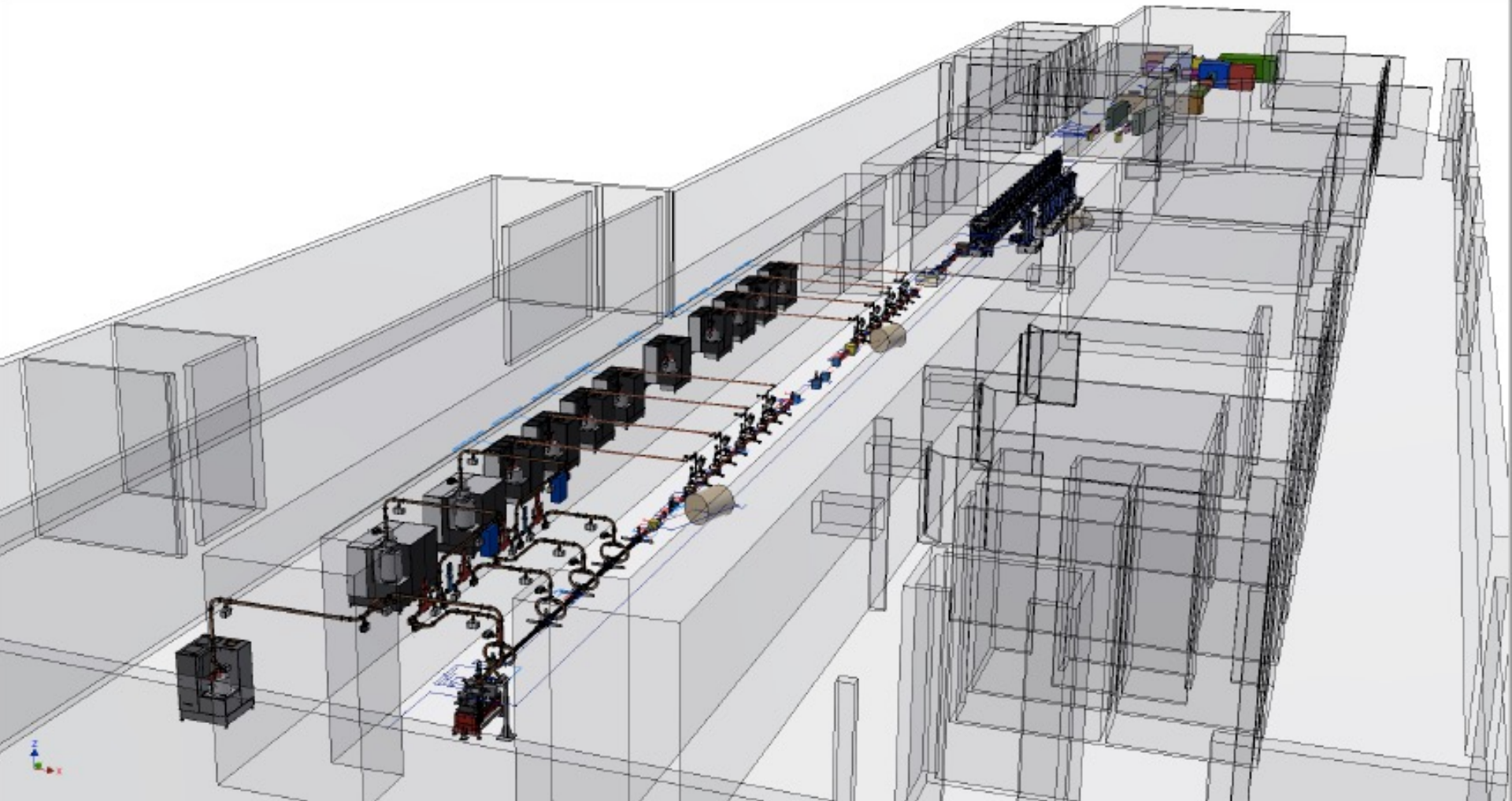
Areas		Module	System Zones	
LNT	Linac Tunnel	LA Accelerating Module	INJ	Injector
FTN	Fel Tunnel	LM Magnetic Module	LEL	Low Energy Line
USR	User Room		CMP	Bunch Compressor
MHS	Modulator Hall S-Band		HEL	High Energy Line
MHX	Modulator Hall X-Band		PLS	Plasma Section
PWS	Power Supply Area		FEL	Undulator Line

Component Legend			
	BPM		Linearizer
	Corrector Magnet		Quadrupole Magnet
	BPM with Corrector Magnet		Sextupole Magnet
	FAST Current Transformer (FCT)		Special Dipole
	YAG/IOTR Beam Screen		Dipole Magnet
	Vacuum Valve		Vacuum Chamber
	S-Band Accelerating Structure		Radiation Stop
	X-Band Accelerating Structure		Beam Dump
	Transverse Deflecting Cavity		

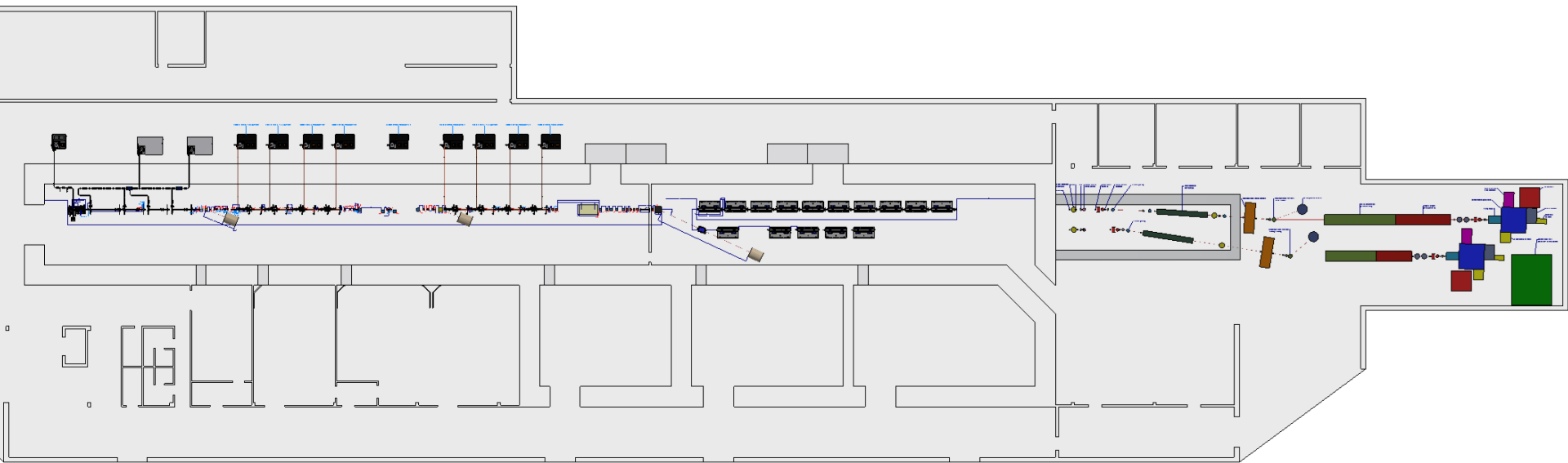


F.Cioeta

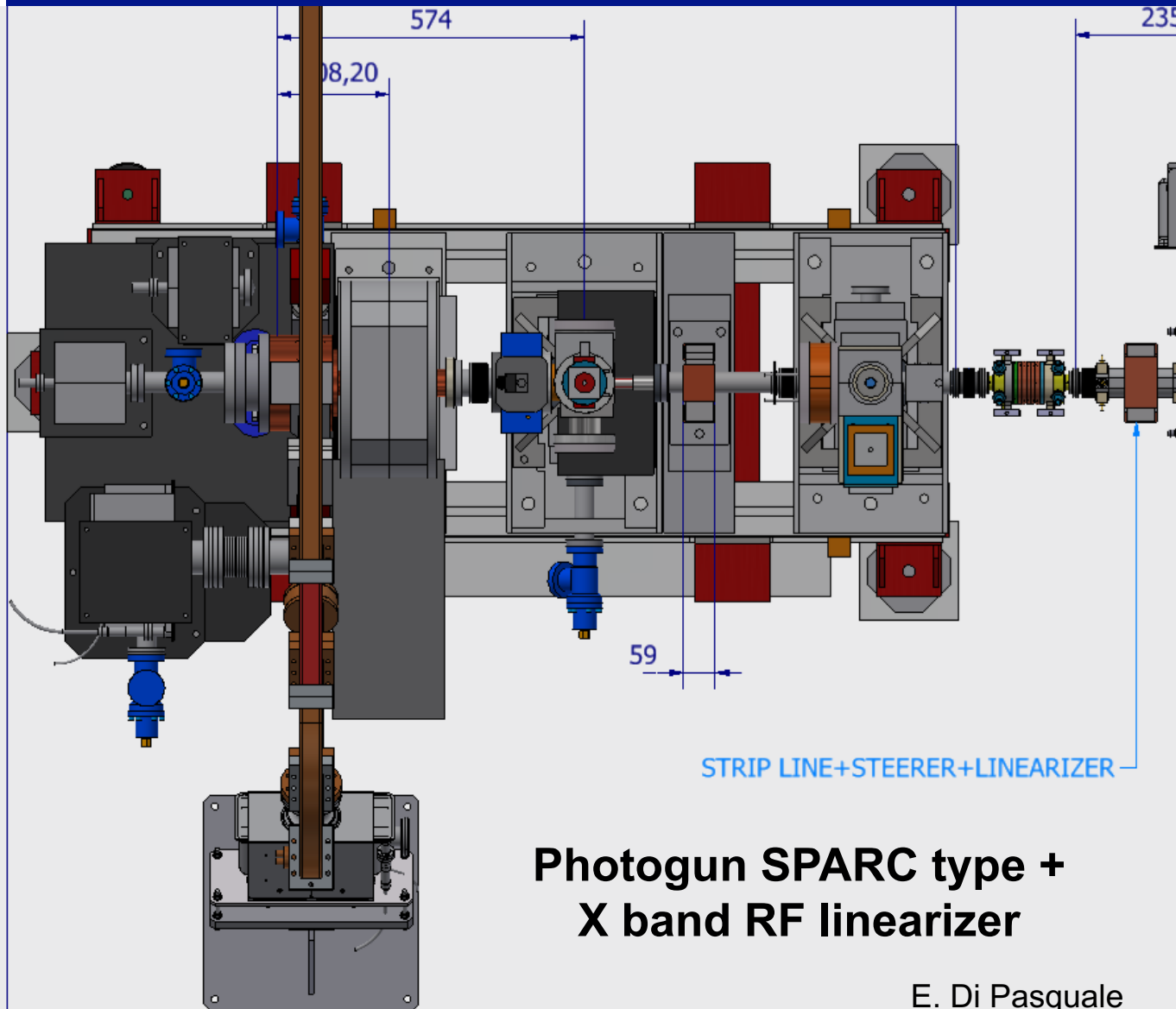




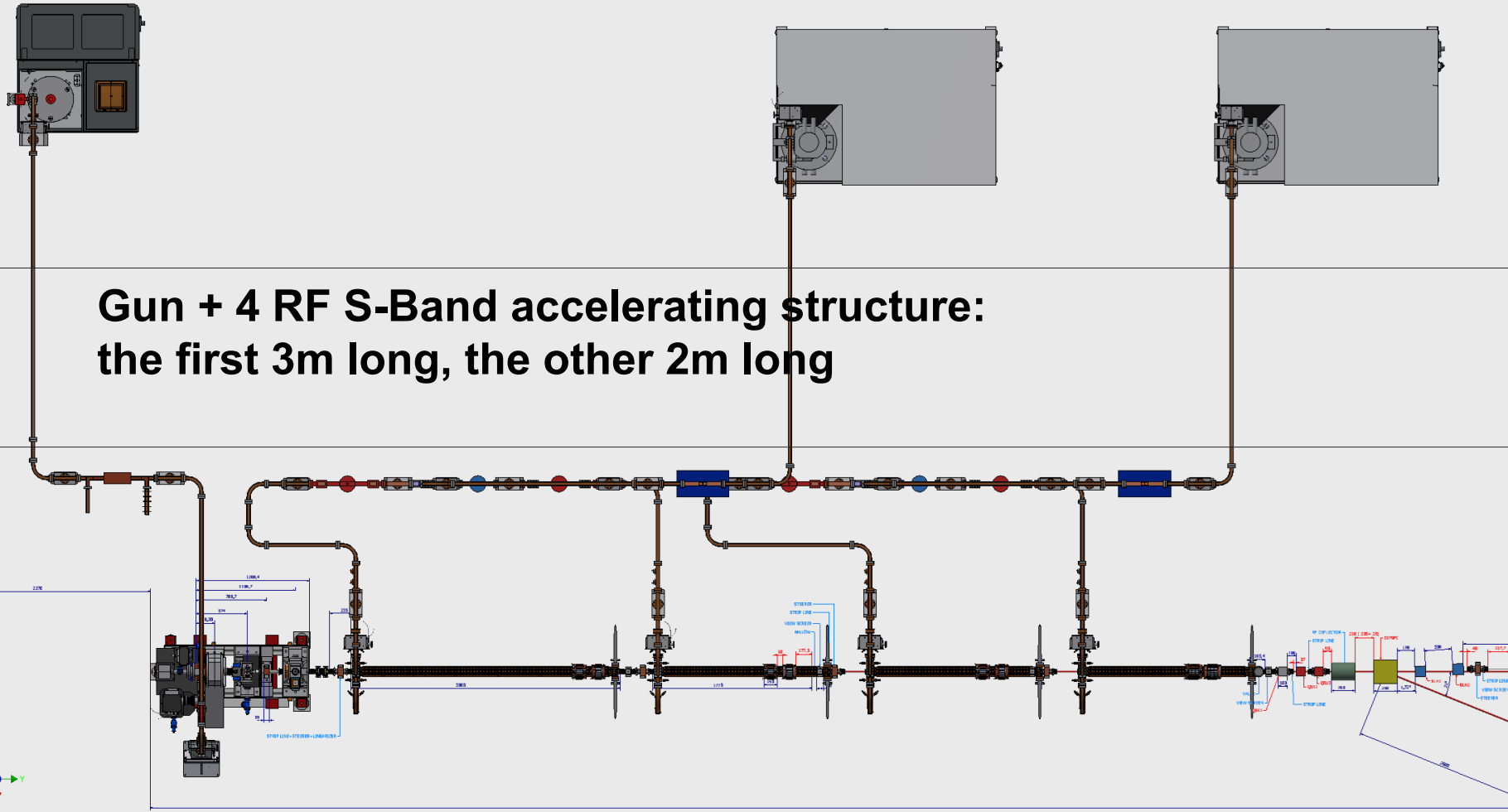
Linac, undulators and user area layout



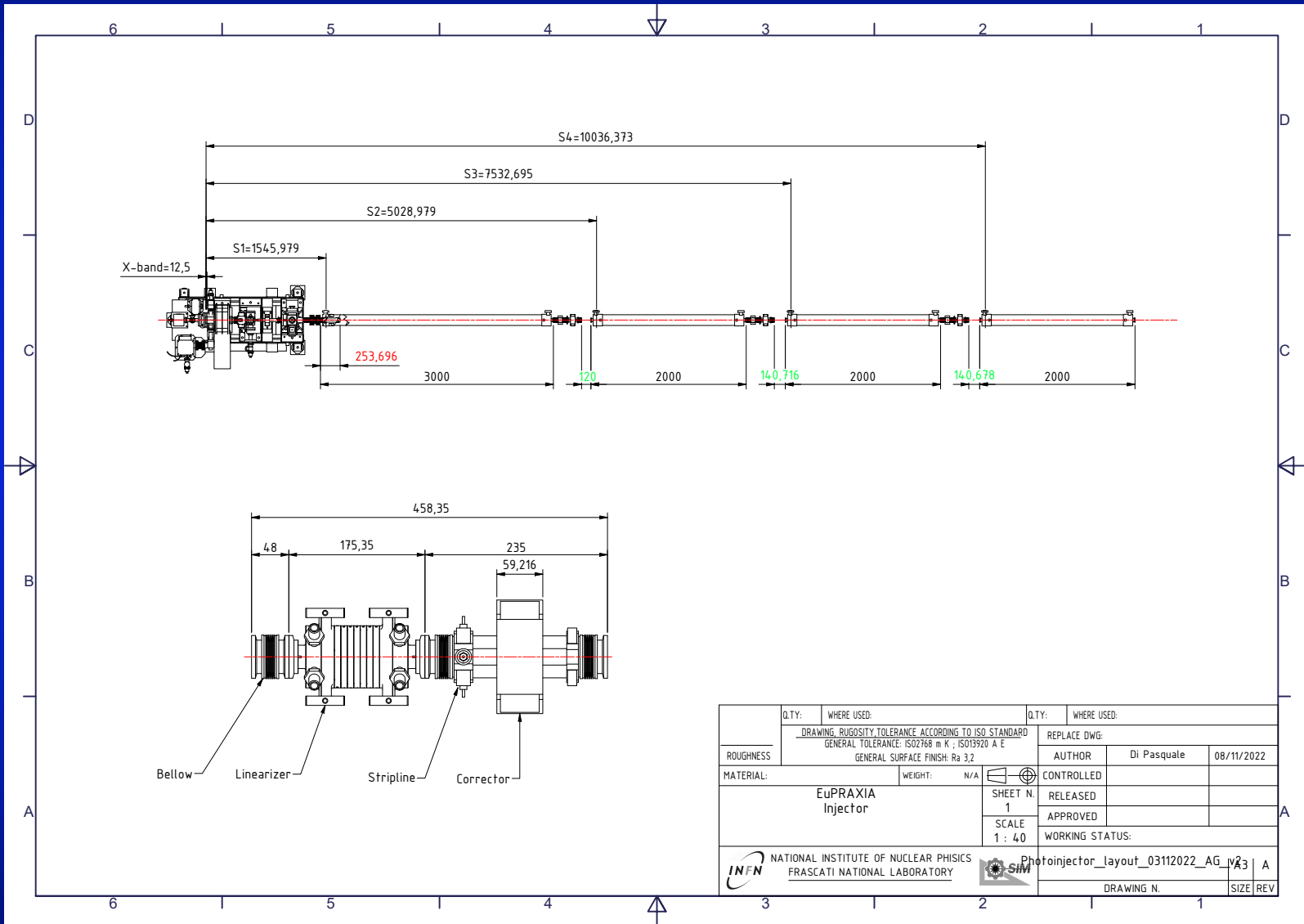
The components studied so far for the EuPRAXIA complex are: the injector, the RF linac, the plasma acceleration module, two undulator lines, two optical lines and two experimental stations

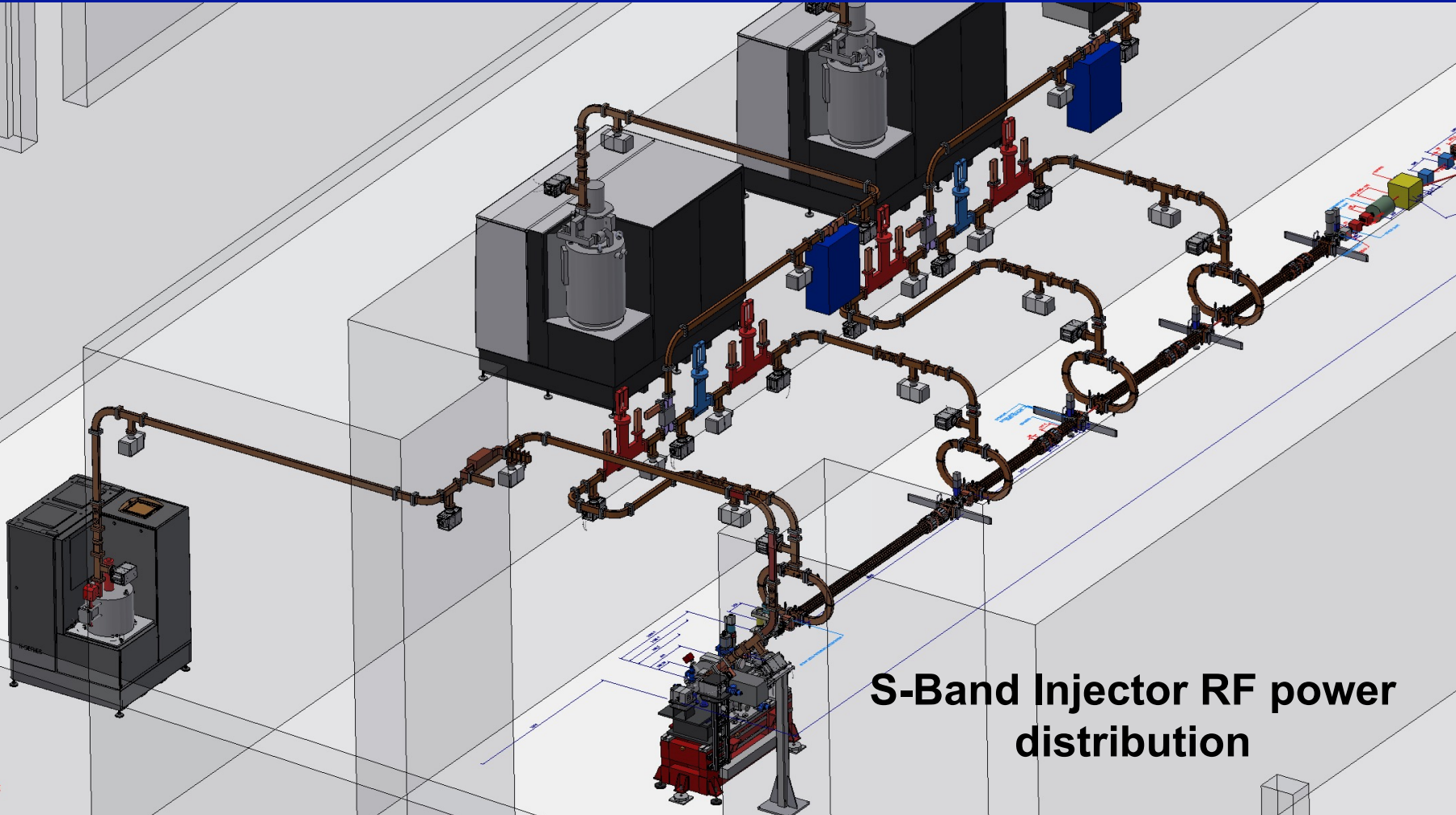


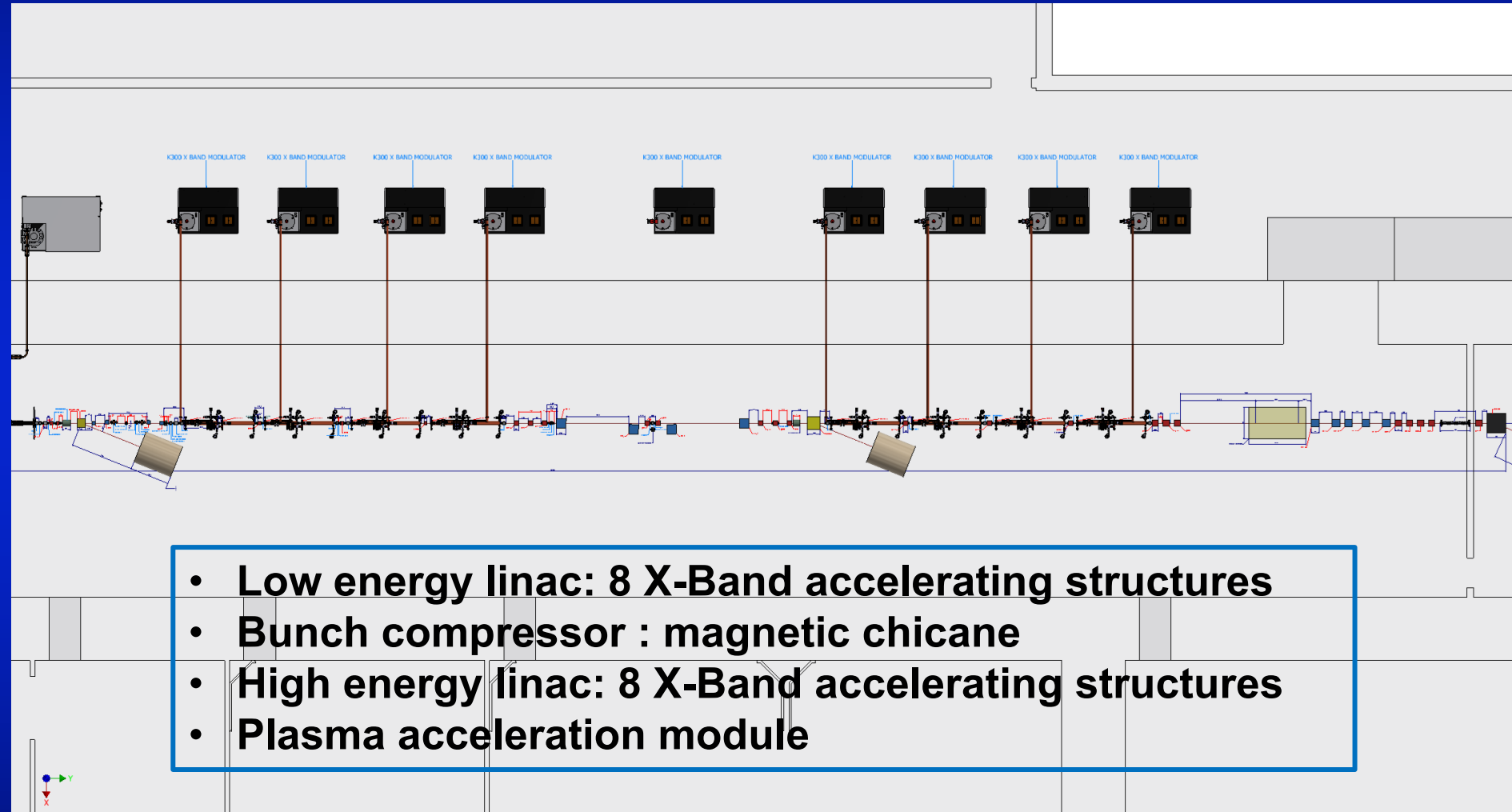
Injector 2D layout

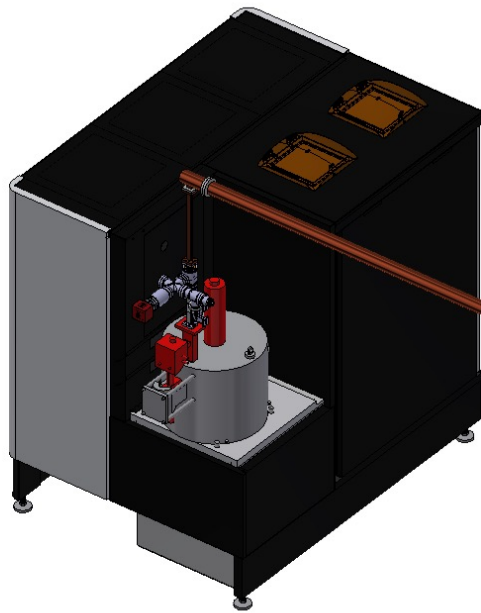


Injector drawing



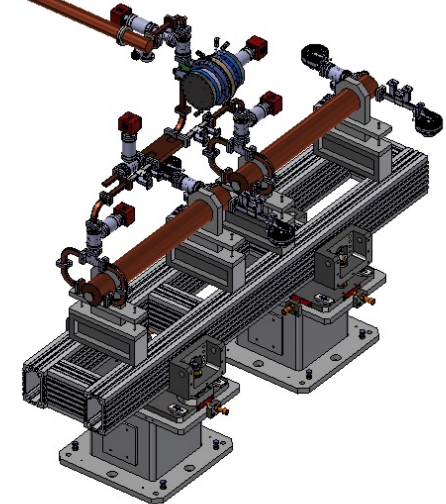






**CANON 25 MW Klystron
SCANDINOVA K300 Modulator**

**BOC Pulse Compressor +
2 x 90cm X-band Accelerating Sections**

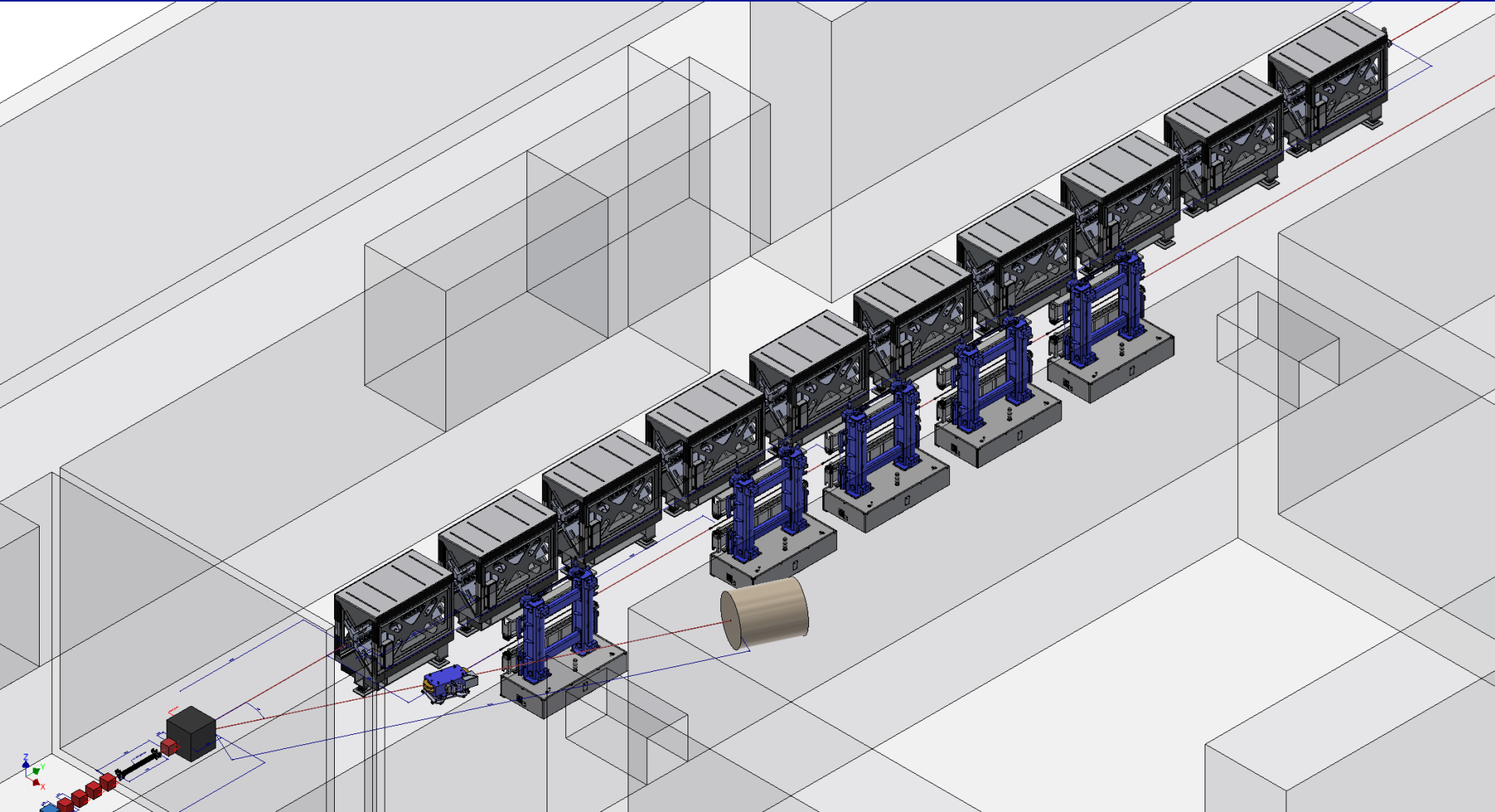


AQUA: 10 APPLE-X Undulator Modules 2m long

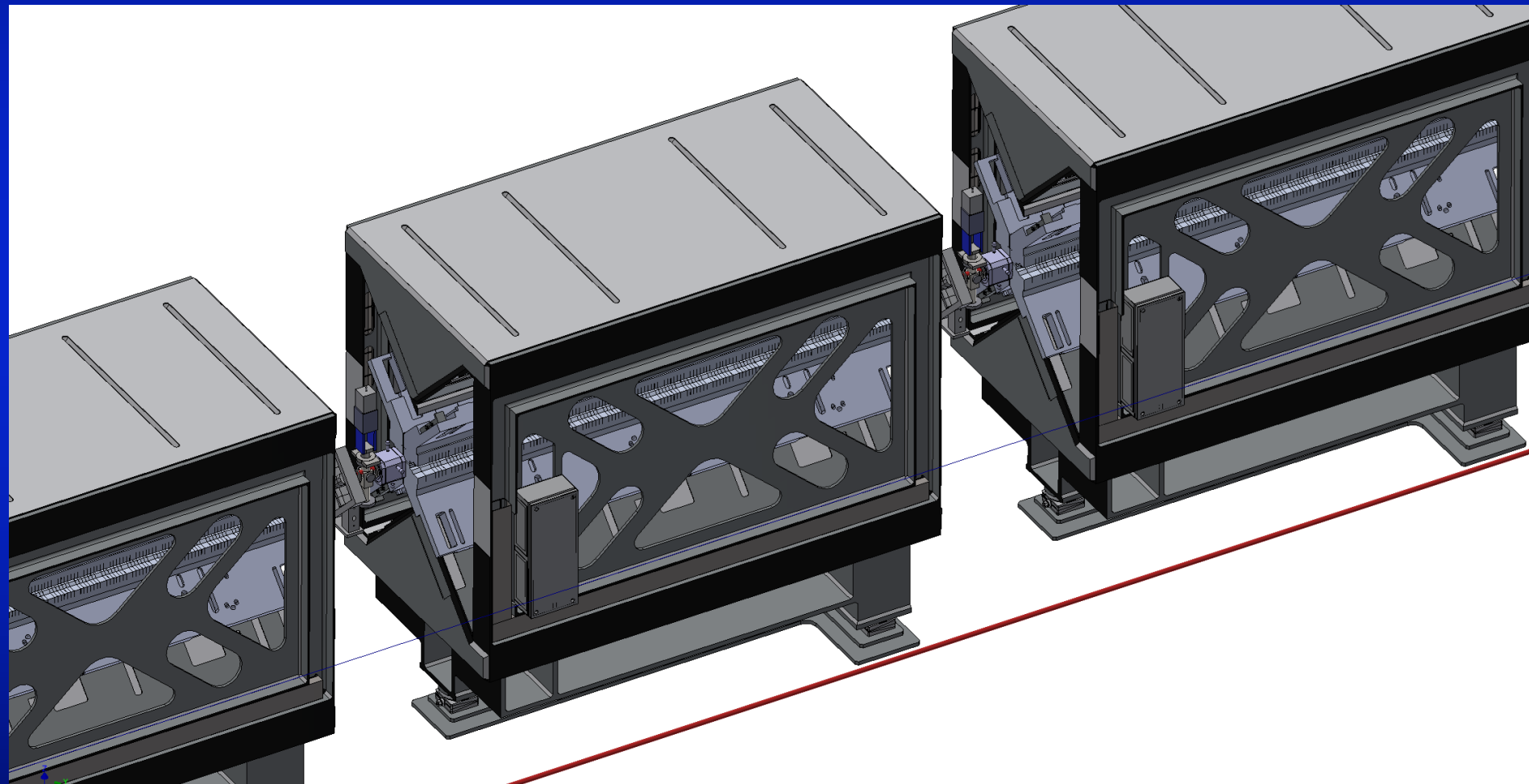
ARIA: 5 undulator modules + dispersive section



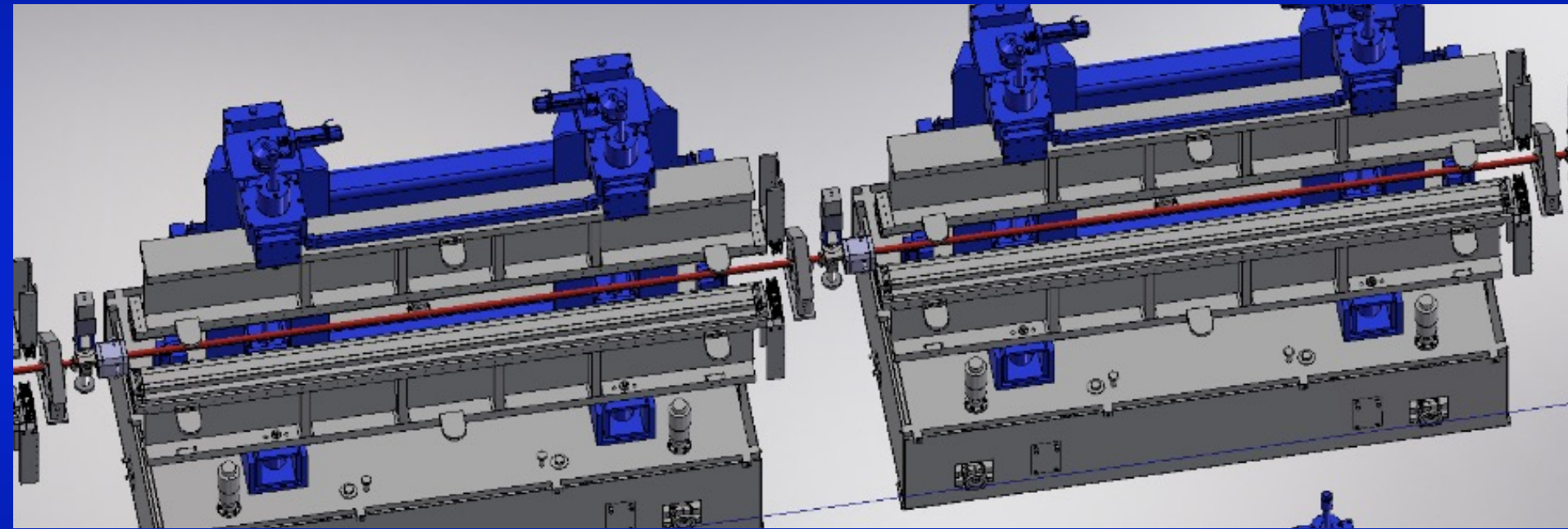
AQUA and ARIA 3D view



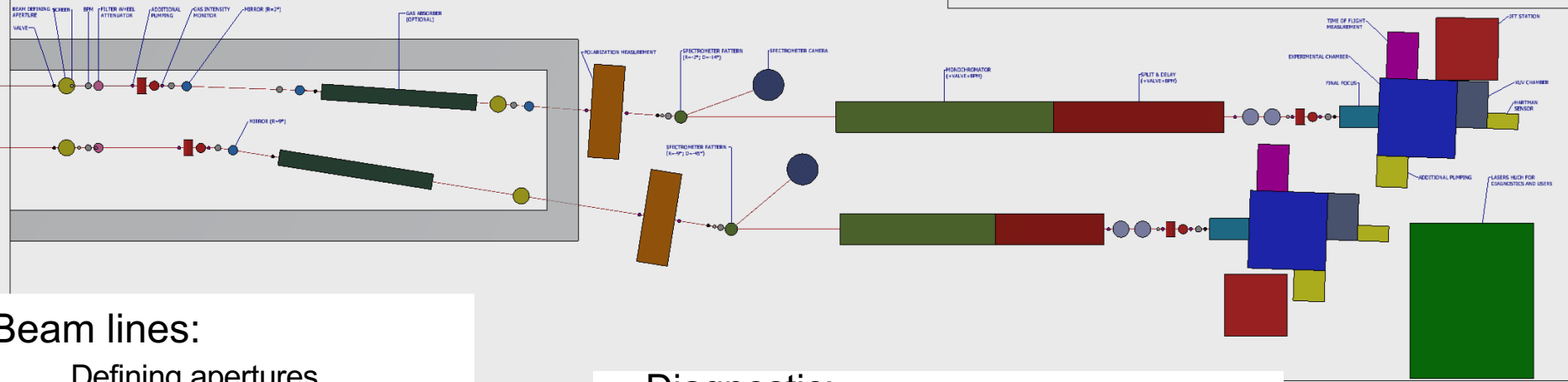
Quadrupole-corrector magnet; Cavity Beam Position Monitor; view screen and pumping unit have been inserted between each module



ARIA Planar Undulator Module with quads & diagnostics



We have to select the beam line components according to the needs of the user



Beam lines:

- Defining apertures
- Mirror and focusing
- Filter and attenuators
- Monochromator
- Split & delay

• Diagnostic:

- Beam position monitors
- Intensity monitors
- Spectrometer
- Transverse dimension
- Longitudinal dimension & time arrival
- Wavefront measurement
- Polarization measurement
- Coherence measurement

Thanks for the attention