TC report

Davide Fiorina – GSSI & INFN

HallF

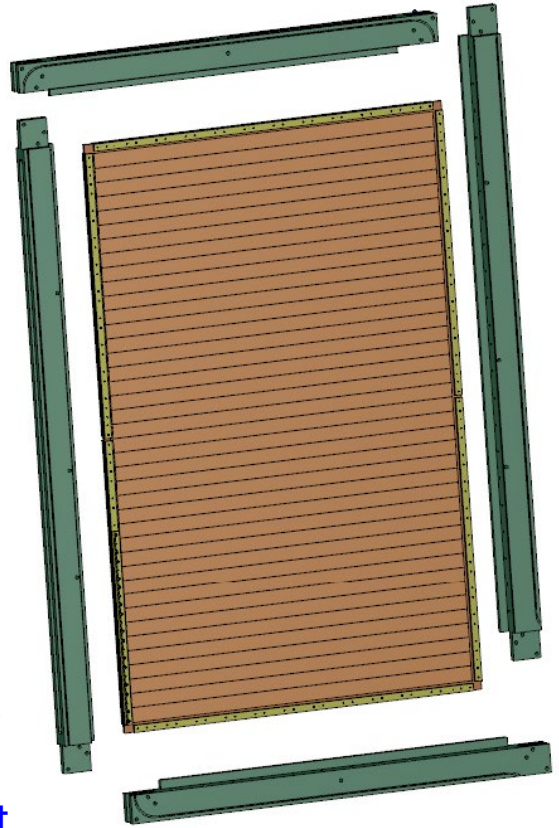
Works have started in 12/02/2025

- Comunication with workers and the company was not easy but the turbulent part has come to an end (thanks also to Sandro and Giovanni de Leonardis)
- All the infrastructure parts are in HallF, and all the permits are in place
- Works due to end 28/02/2025

Daniele Pierluigi and LNF team

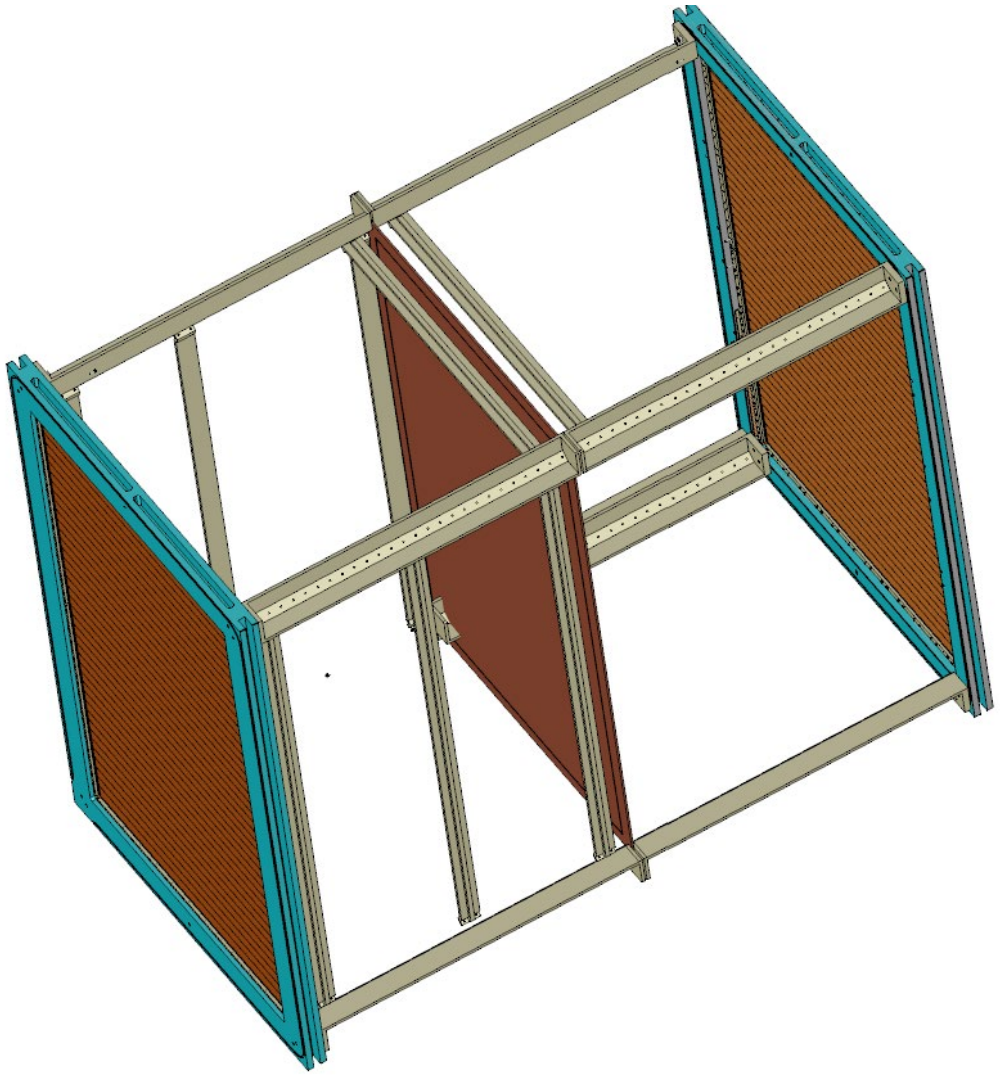
GEM frame

- Design finalized
  → 2x stack in production



Field Cage

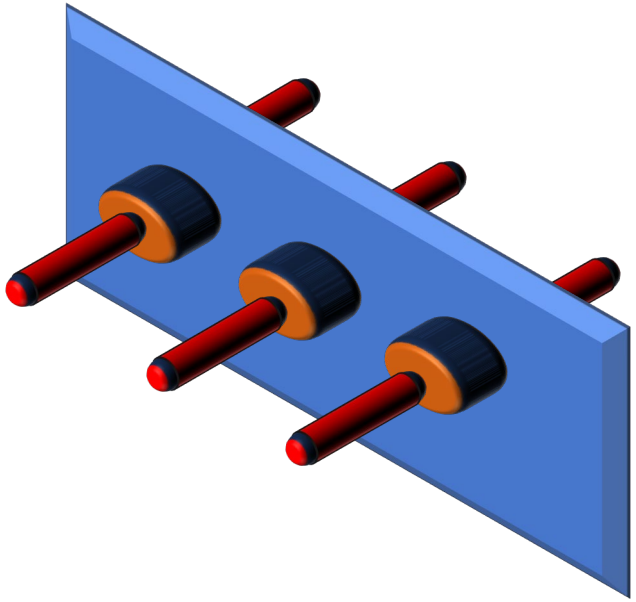
- Preliminary design in place
- Enough to pass effective dimensions to the designer for the PMMA vessel
- Cathode (Kapton-copper foil) support, interface, and cabling idea is formed
  → To be implemented in next weeks



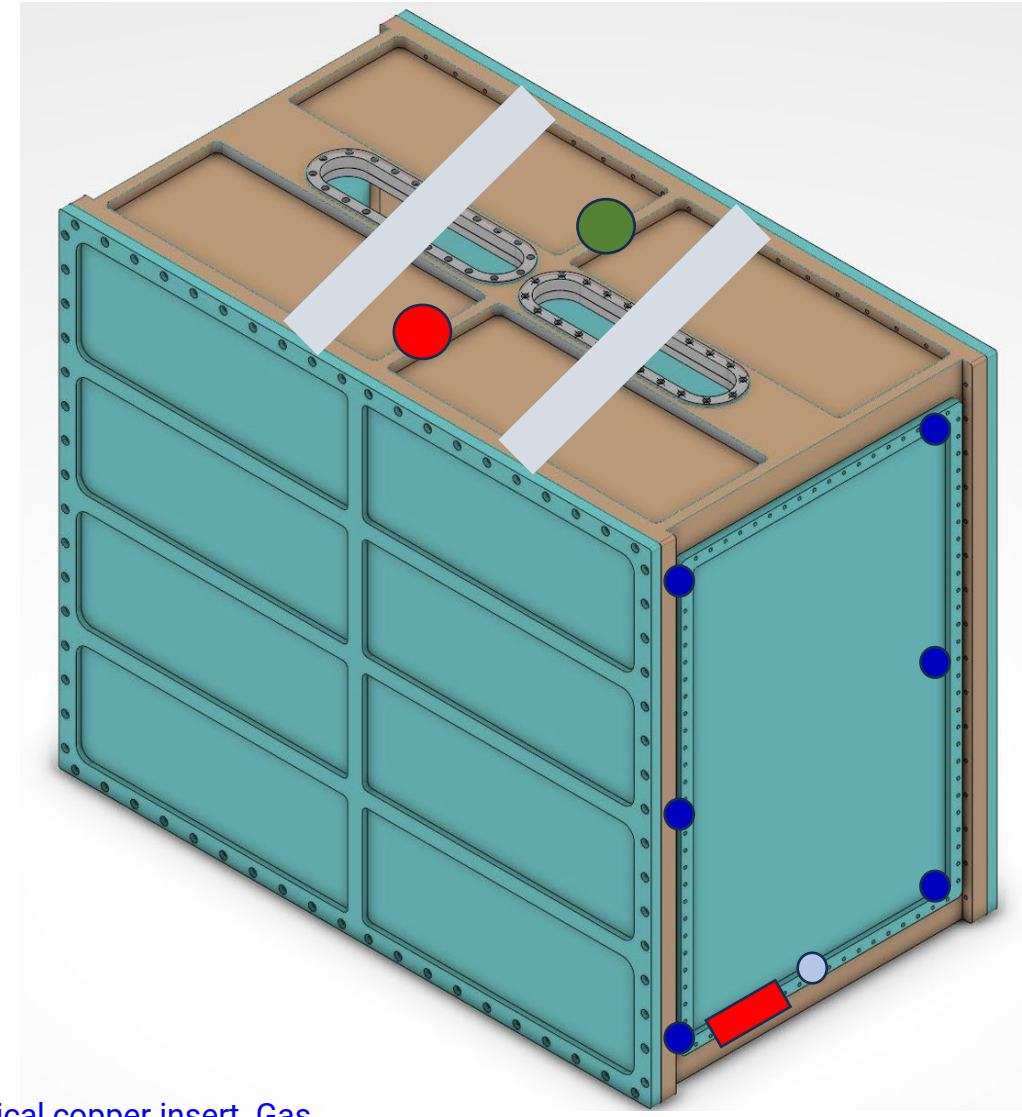
LNF and LNGS design team

PMMA vessel design

- 6 inlets per side
- 1 pressure measurement per side
- 1 patch panel for 7 HV channels per side
- 1 gas return in the top middle of the vessel (to be routed on one side)
- 1 feedthrough for the cathode
- Source windows will be segmented from 2 to 4 windows still symmetric for 55Fe calibration



PMMA with cylindrical copper insert. Gas tightness ensured by PMMA filling in the cylinder hole

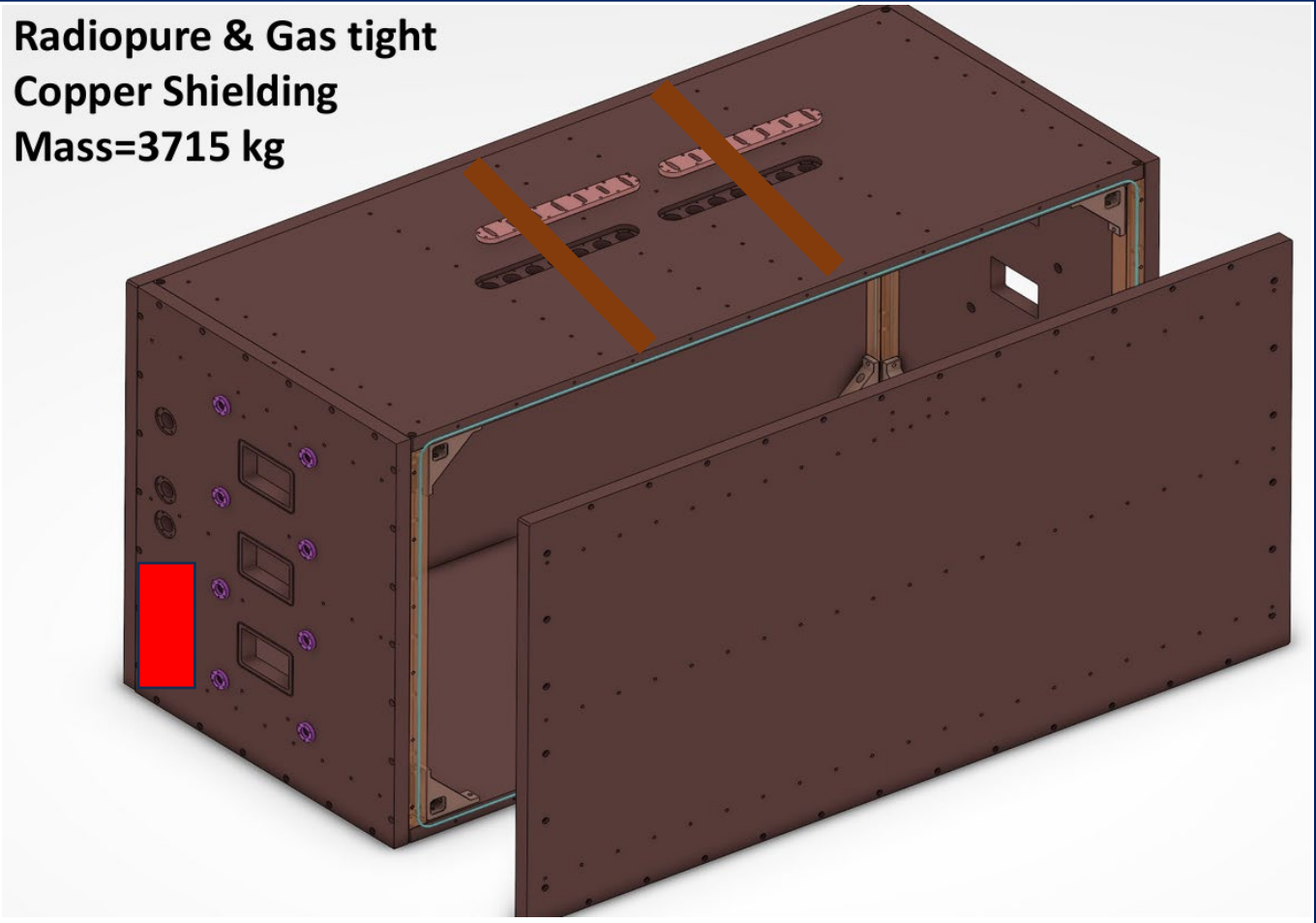


Integration in 3D ongoing!

LNF and LNGS design team

Copper vessel design

- Large copper patch panel on each side
  - 1 Redell input
  - 1 input gas pipe PMMA
  - 1 output pressure pipe
  - 1 return PMMA (only one side)
  - Input or Output for Copper vessel gas
- Thighness ensured by o-rings
- Internal gas distribution 1 to 6 pipes may be done via the excess radiopure copper or N66
- Source windows will be segmented from 2 to 4 windows still symmetric for 55Fe calibration to stiff the structure



Integration in 3D ongoing!

Gas Distribution

There are 3 possible solutions for operating the 2 volumes:

- N2 flushing the vessel
  - Reduction of flushing volume
  - Potential reduction of O2, H2O and radon
- Vessel volume as return pressure control wrt ambient pressure
  - Same operation as LIME
- Vessel volume as return pressure control wrt Vessel pressure
  - Possible stabiliziation of PMMA pressure

To be tested during the first month of commissioning!