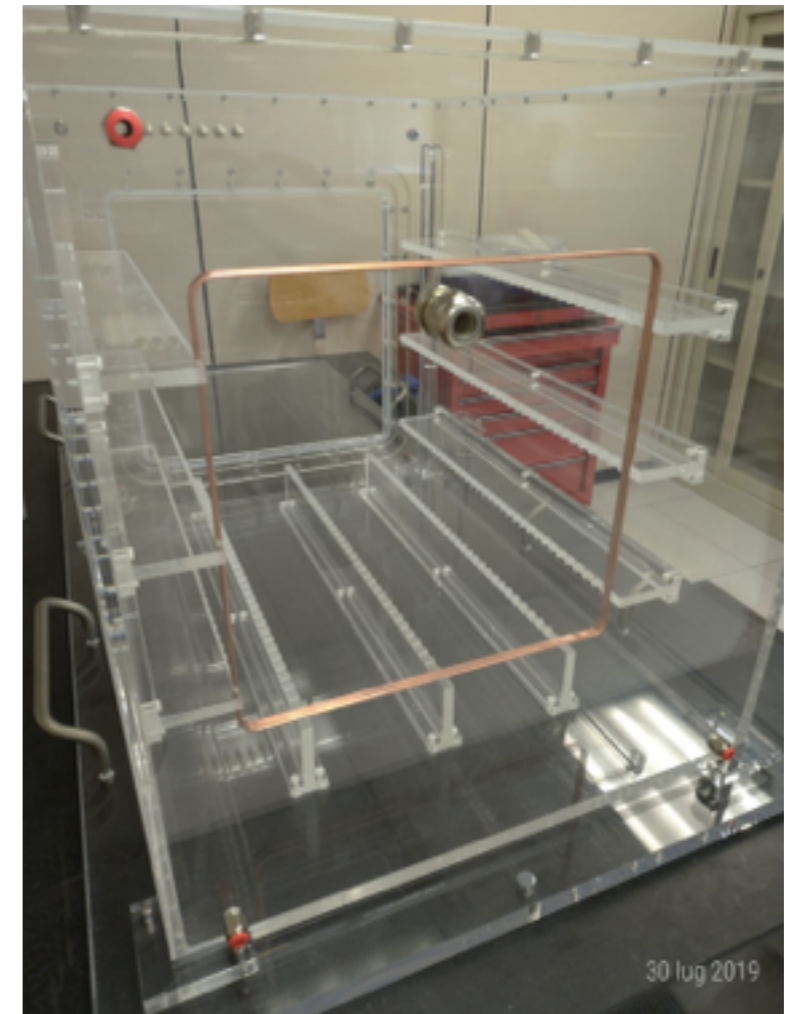
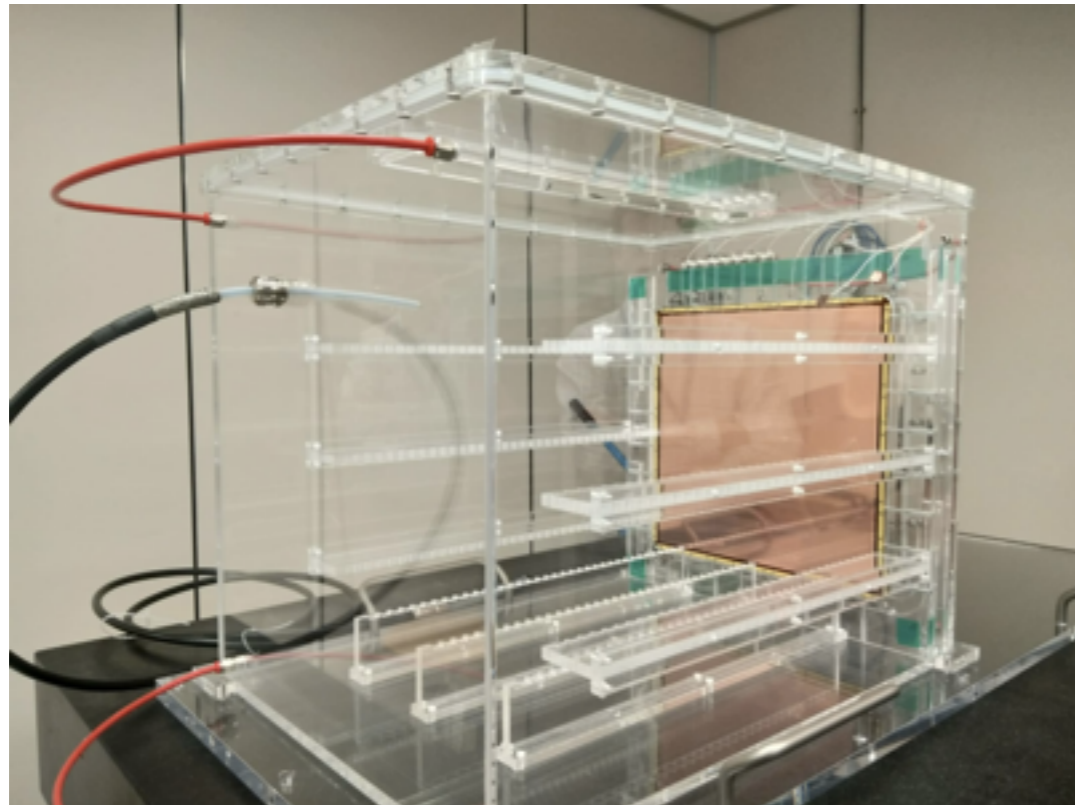
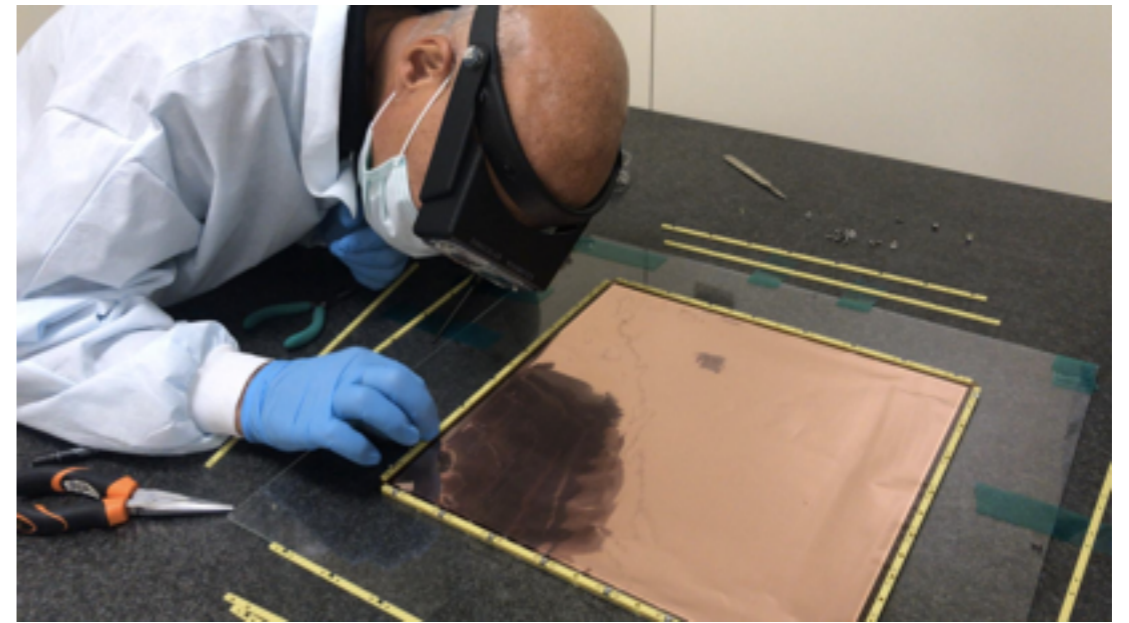
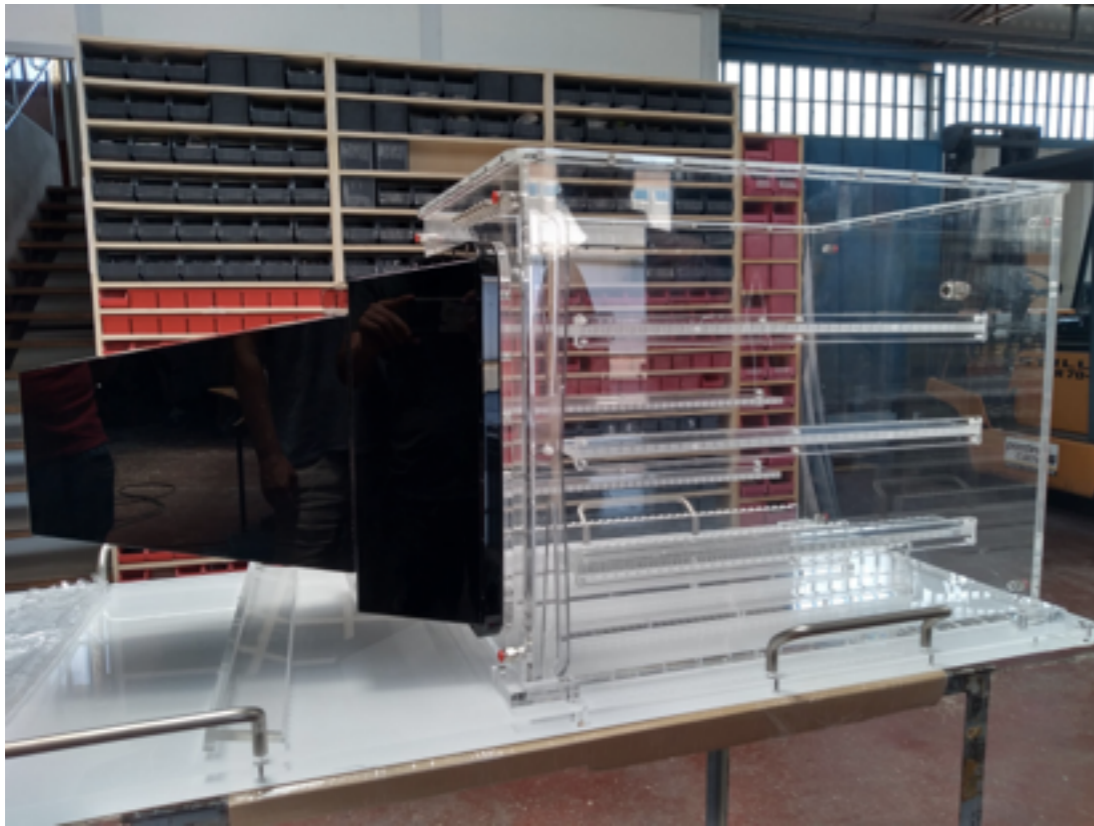


LIME Status Report

Francesco Renga — *INFN Roma*
(*and many other...*)

Construction Status

- Gas-tight acrylic box:
 - build @ PALAZZI S.r.l.
 - tested for gas tightness @ ASTRA (very good)
- Copper ring field cage & copper cathode:
 - prototype ring evaluated, production quality essentially ok, asked for some small improvements
 - mass production on going @ BIANCONE S.r.l. (some delay due to copper procurement)
- GEMs
 - GEM stack assembled on acrylic frame @ ASTRA (despite of some mistake by CERN in the design of the FR4 strips used to stack and stretch the GEMs)
 - GEM quality after assembly looks very good (successful insulation test with Megger tester)
 - although we expect some bending of the frame, it would be compensated by the elastic spacers in the box
- Faraday cage:
 - Design on going



Faraday Cage

- The Faraday cage is needed for **safety** (screen operators and devices from electrodes up to 50 kV) and **stable and repeatable** definition of the **field**
- We decided to build a box with aluminum profiles and aluminum sheets, slightly bigger than the acrylic box, with an aperture for the photo-camera (the camera will be out of the box)
 - it will also provide the light tightness
- Aluminum profiles and connection elements already at LNF, aluminum sheets just ordered:
 - work on going to complete the design (Filippo)
 - need machining of aluminum sheets (we'll try at Aldo's workshop)

Other elements

- Optical bellow: ok
- Linear stage: ok
- Camera-bellow coupling: 3D-printed components ok, missing coupling
- Dummy anode for HV tests: ok
- Cathode connection: ok (banana plugs), to be tested

The LIME family

- LIME: to be moved at LNGS
- LIME-II:
 - tests that cannot be performed once LIME is at LNGS (special sources, laser,...)
 - precision measurements of gas properties (orthogonal w.r.t. main LIME tests)
 - long term exploration of alternative techniques
- LIME-LOW PRESSURE

To-do list

1. Production of executive drawings for the Faraday cage
2. Machining of Faraday cage components
3. Assembly of Faraday cage
4. Design and construction of bellow interface
5. Design and construction of Faraday cage feedthroughs
6. Grounding connections on LIME and field cage
7. Cathode test at 50 kV
8. Preparation of copper rings for resistor mounting (soldering of mounting pins)
9. Field cage assembly

Other developments

- We are designing the components for field cages with resistive foil (*à la Kentaro*) or kapton/copper foil (*à la Dinesh*), to be installed (interchangeably) inside LIME
- A few ideas under discussion, based on the experience @ ASTRA with a resistive-foil field cage for MANGO

