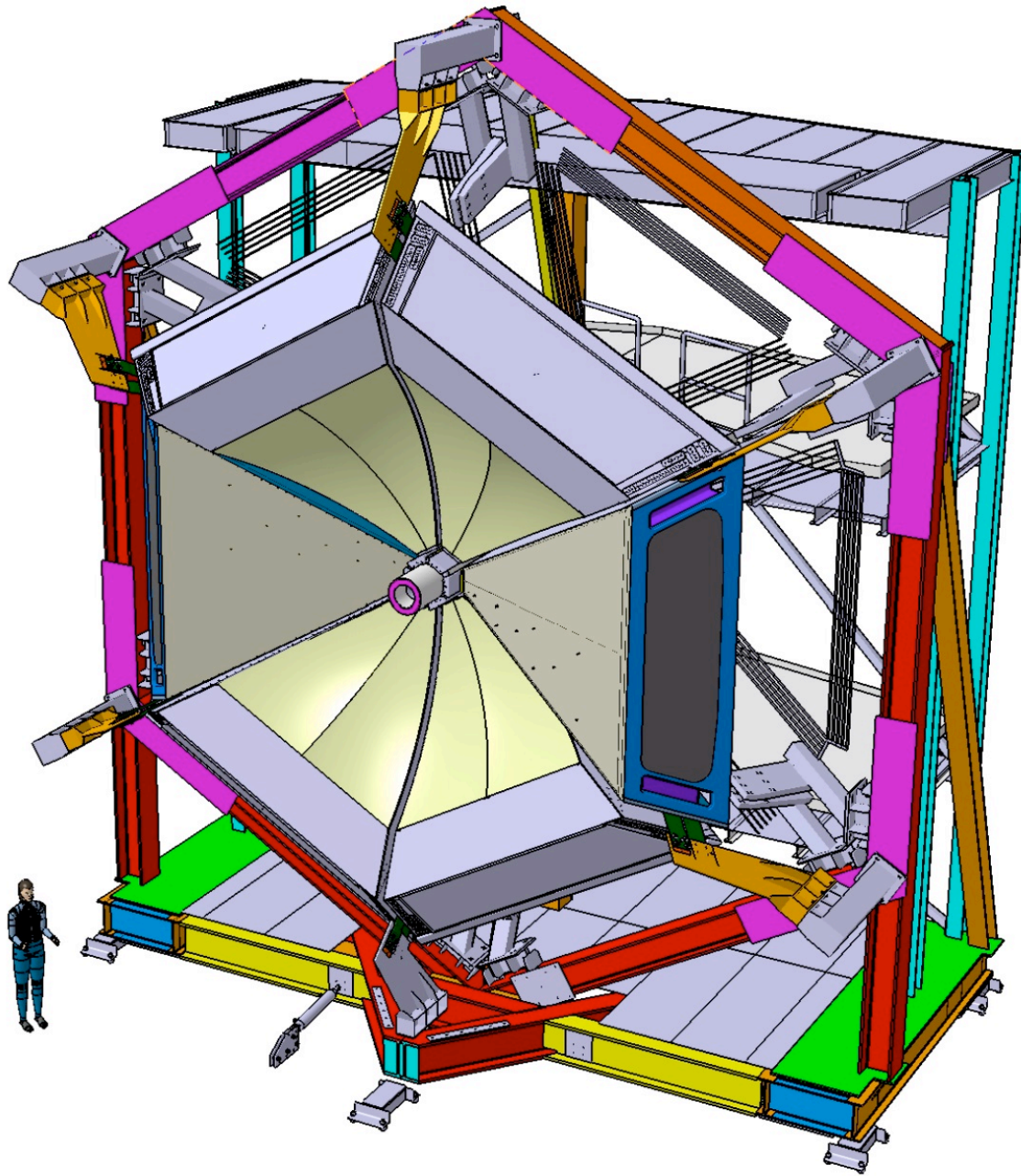


CLAS12-RICH Status-Report



Aerogel

Manufacture Engineering Phase ongoing with Novosibirsk to improve and stabilize large tiles production yield and transmission length

Large area tiles:

- have succeeded to produce several 'large' blocks with raw dimensions 180x180 and 230x230 mm (will finally shrink to 160 and 200 mm)
- characterization (thickness, flatness of surfaces, scattering length) ongoing
- preliminary results with large blocks positive and promising

Bottom Surface quality:

- several blocks where synthesized on top of glass plate or plastic covered plate
- developing the quantitative method to compare quality
- some of them look good

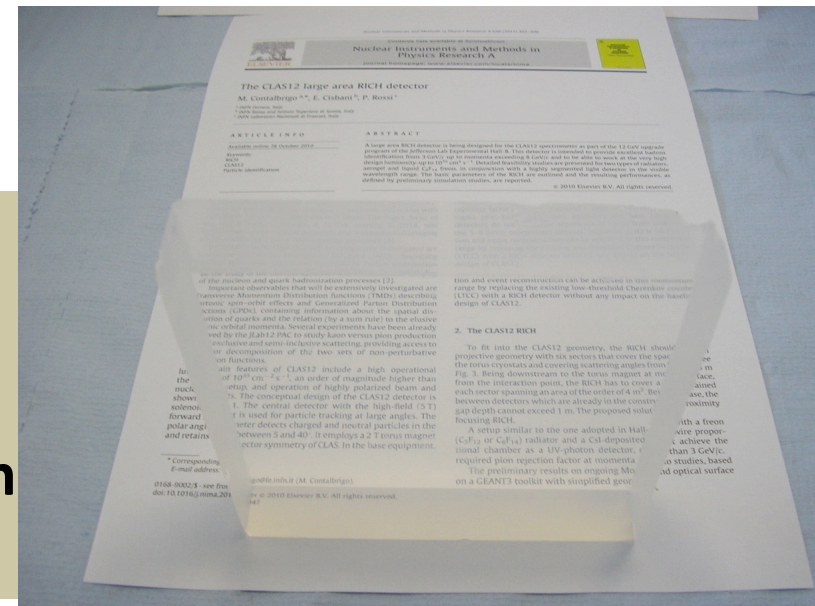
Aerogel Radiator

Refractive index: 1.05

Area: 20x20 cm²

Thickness: 3 cm

Scattering Length: greater than 50 mm

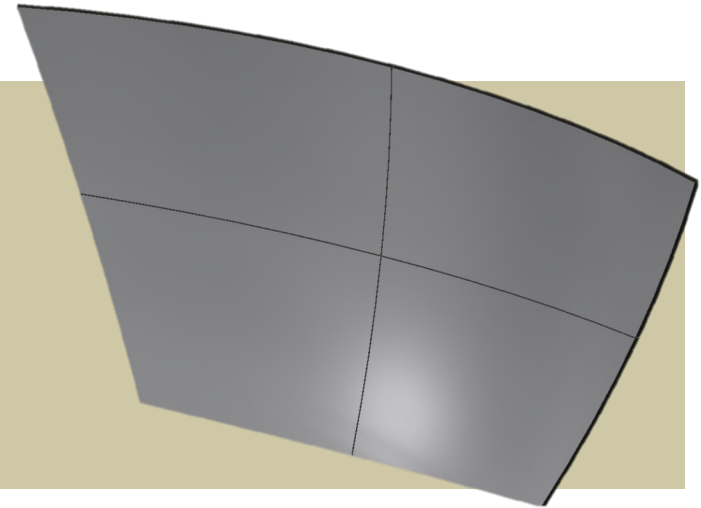


Mirrors

Manufacture Engineering Phase ongoing with companies in Italy and USA
In contact with CERN laboratory for mirror characterization

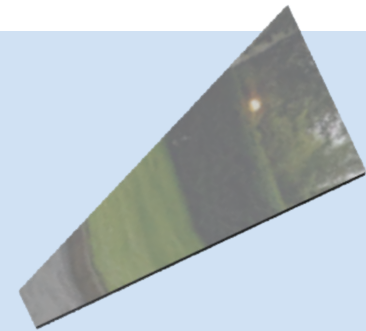
CFRP SPHERICAL Mirror

Radius tolerance $\leq 1\%$
Surface accuracy: $5 \mu\text{m}$ RMS
Surface Quality: 3 nm RMS
 $D0 < 5 \text{ mm}$
Reflectivity $> 90\%$



Planar Glass Mirror

Planarity tolerance $\leq 0.1 \text{ mm}$
Surface accuracy: $5 \mu\text{m}$ RMS
Surface Quality: 3 nm RMS
Reflectivity $> 90\%$



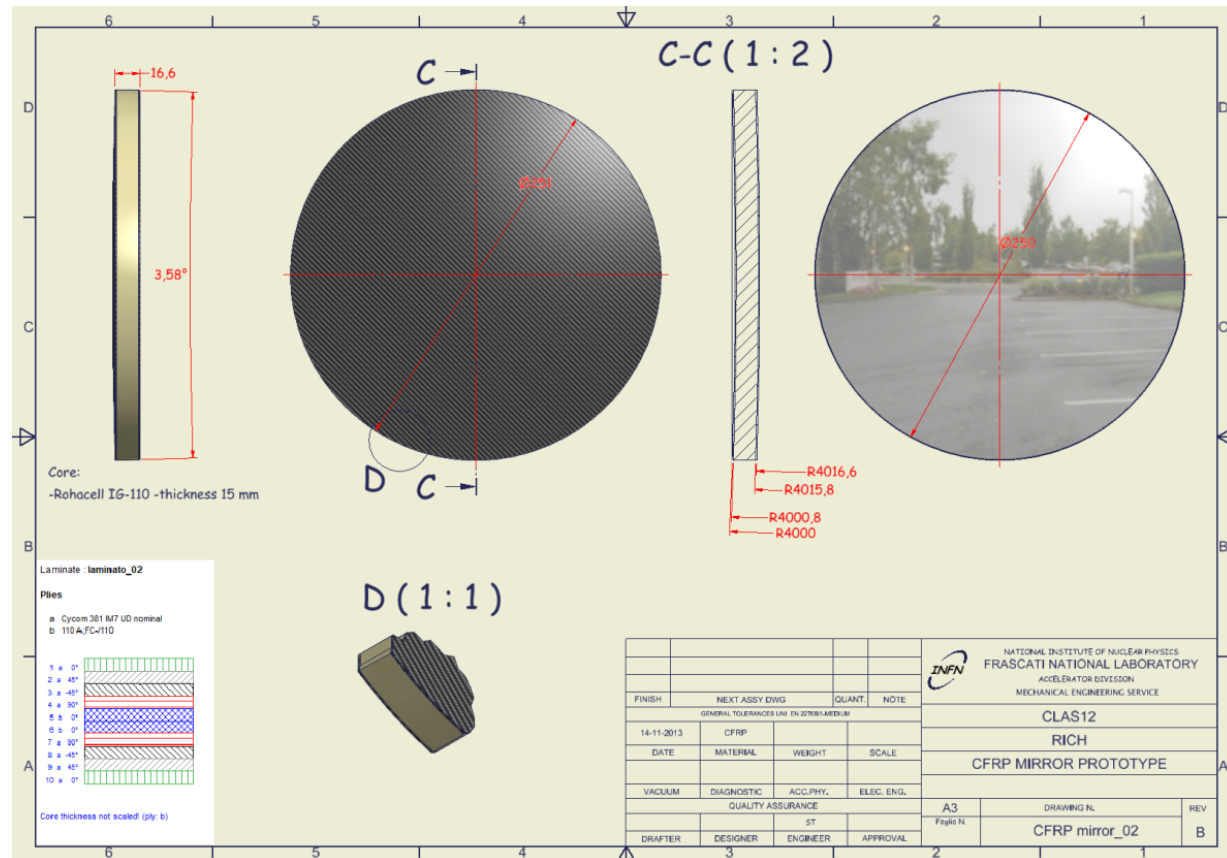
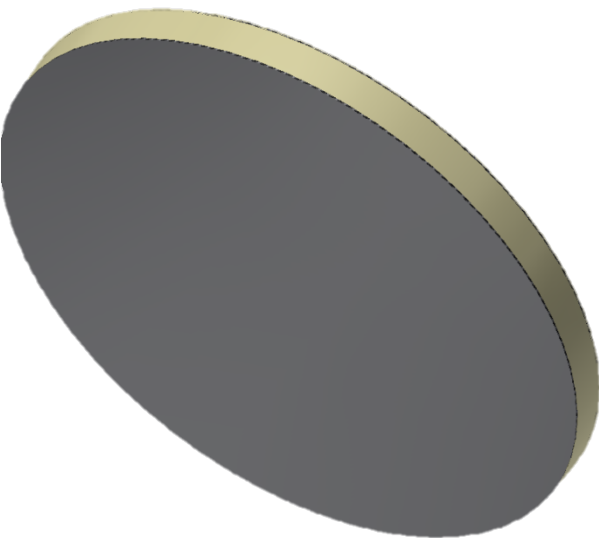
CFRP Spherical Mirror: Mandrel Demo

Visit to Marcon (Italy) :

- working to send the mandrel to CMA beginning of March
- our specification well below they standards

radius accuracy $\ll 1\%$ (by at least one order of magnitude)

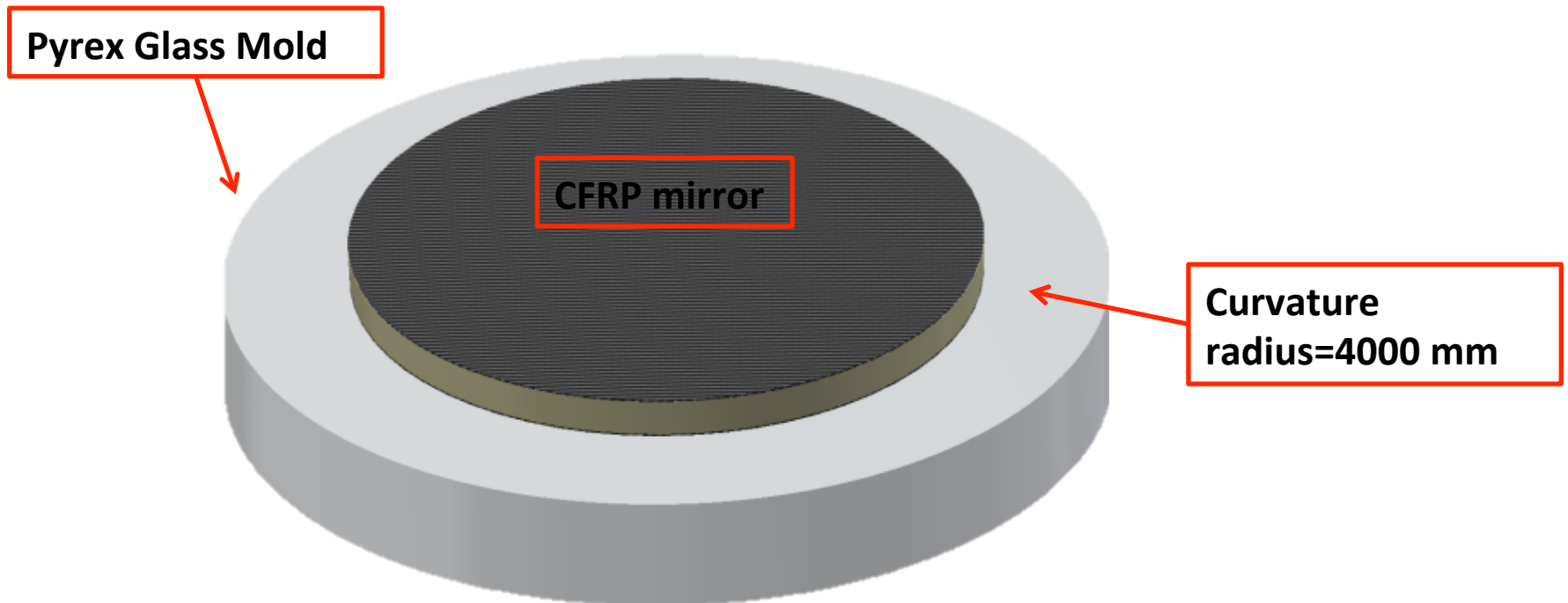
surface quality $\ll 1\ \mu\text{m}$ ($\sim \lambda/4 - \lambda/8$ p-v referred at $0.5\ \mu\text{m}$)



CFRP Spherical Mirror

Two mirrors demo in preparation at CMA (USA) :

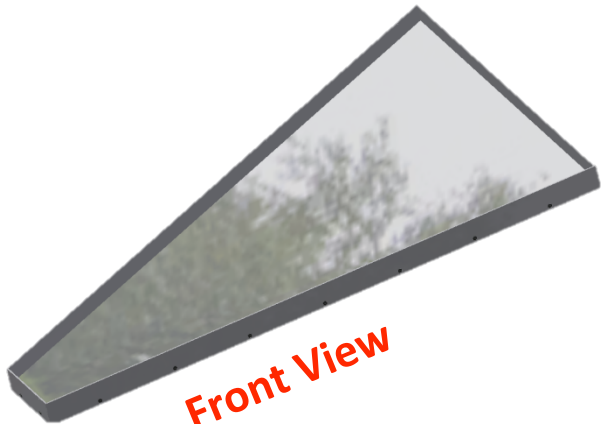
- CFRP skin and rohacell core
- spherical shape, 30 cm diameter
- 1st demo: 3.5 m radius, LHCb finish, from a CMA mandrel
on track: coating started 1 week ago
- 2nd demo: 4 m radius, CLAS12 finish
waiting for the Marcon mandrel



Forward Glass Mirror

Two demos under preparation at Media-Lario (Italy) :

- soda-line mm glass skin and Al honeycomb core
- reinforced frame for aerogel holder
- 1st demo: 1.6 mm (standard) glass skin thicknesses (started)
- 2nd demo: <1 mm (goal) glass skin thicknesses (looking for material)



Front View



Back View

