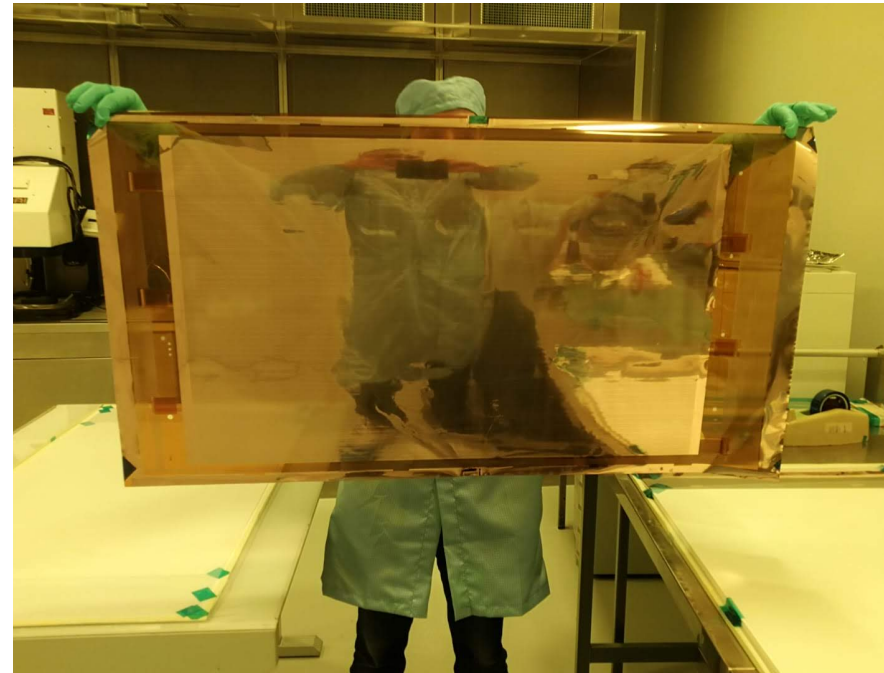
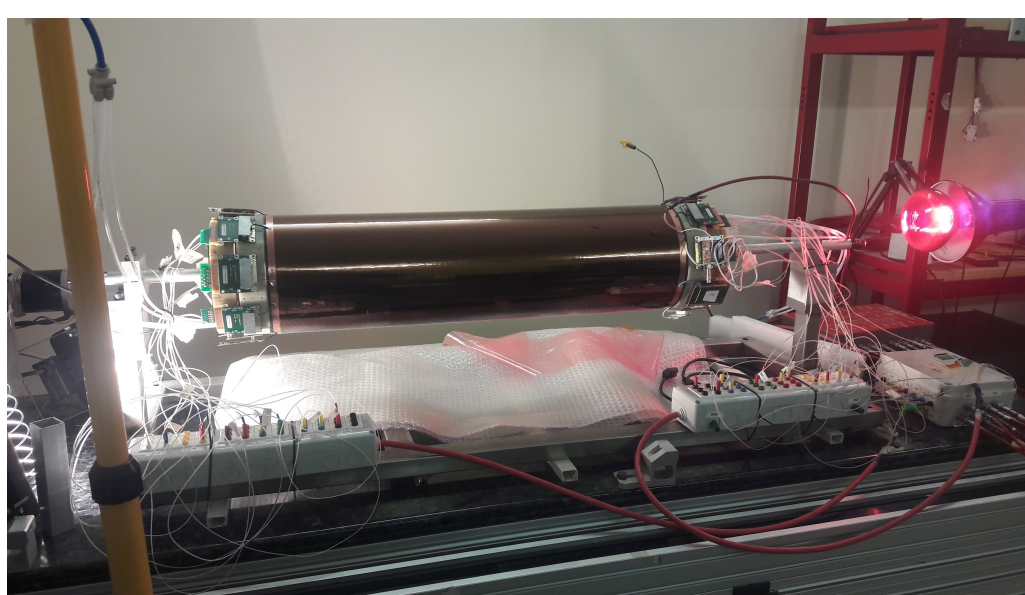


New L1 & New L3

M. Bertani, on behalf of the Construction group



Perugia, 4 novembre 2019

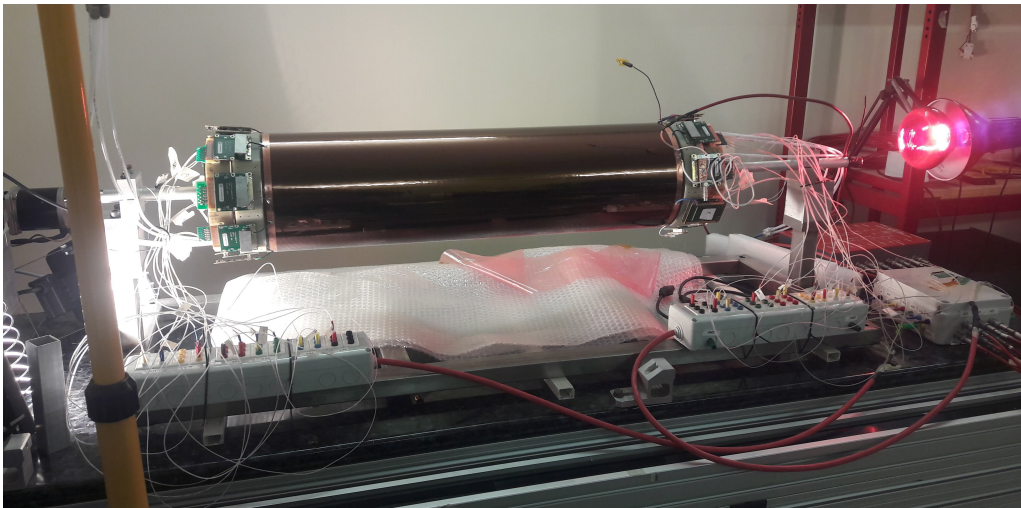
New L1 status

- ✓ end of July: 5 cylinders completed
- ✓ end of September: nL1 assembling completed,
 - ✓ gas tightness ok
- ✓ beginning October:
 - ✓ nL1 turned on (thanks to Riccardo)
 - ✓ HV tests started
 - ✓ source scan performed

- ✓ October 18th turned off and packed
- ✓ October 19th , travelled to Fiumicino
- ✓ October 22ndth back to LNF...
 - ✓ turned on again
 - ✓ turned on and checked again (thanks to Marco Scodeggio)
- ✓ November 7th expected to leave LNF

New L1 tests

- **nL1** tests before and after trip to Fiumicino
- it suffers from humidity, possibly on the surface of connectors and wires
- Ar/CO₂, 2.5l/h
- at nominal HV [1000-600-750V Ind-Tr-Dr, Gem's @360V: they draw currents $\approx 600\text{nA}$, decreasing soon under the lamp's light, reaching $\approx 100\text{nA}$ @ $T=30^\circ - 35^\circ$
- some trips of G3
- source scan: Cs137, $T=30^\circ$, $U=30\%$
 - currents variations mainly on G3, from 60nA to 130nA, on the four sectors
- Capacitance measurements are consistent

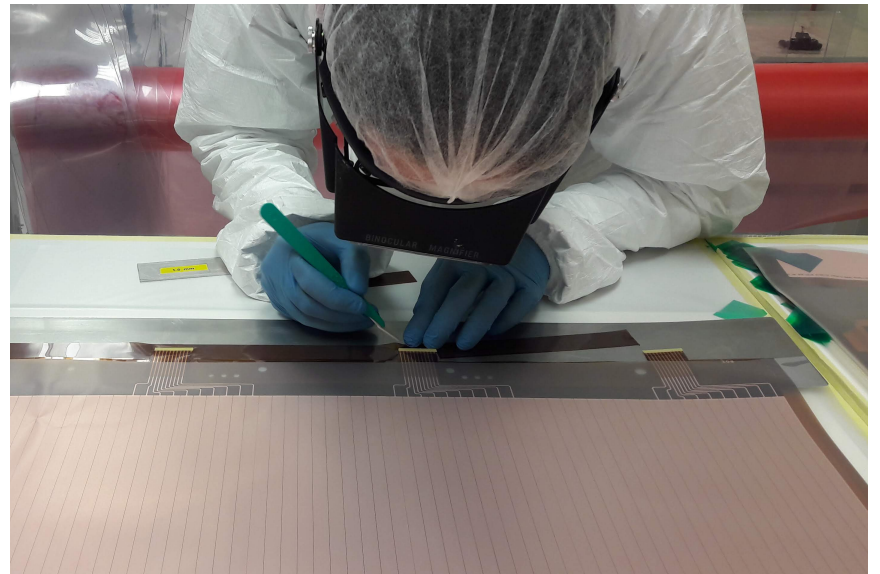
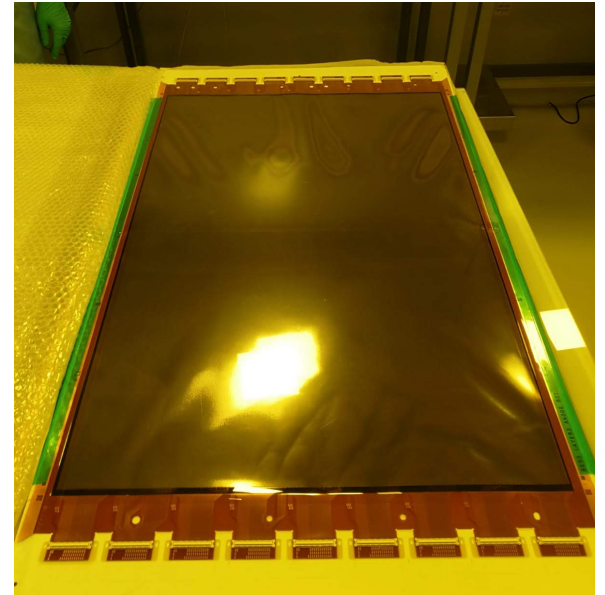
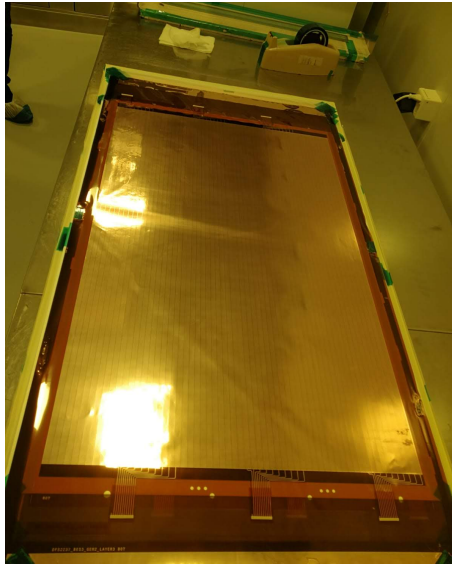
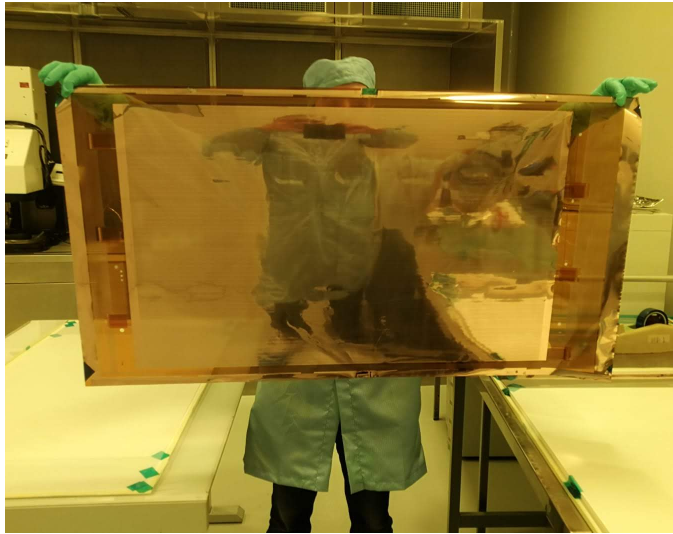


Thanks to Giulietto, Riccardo, Marco

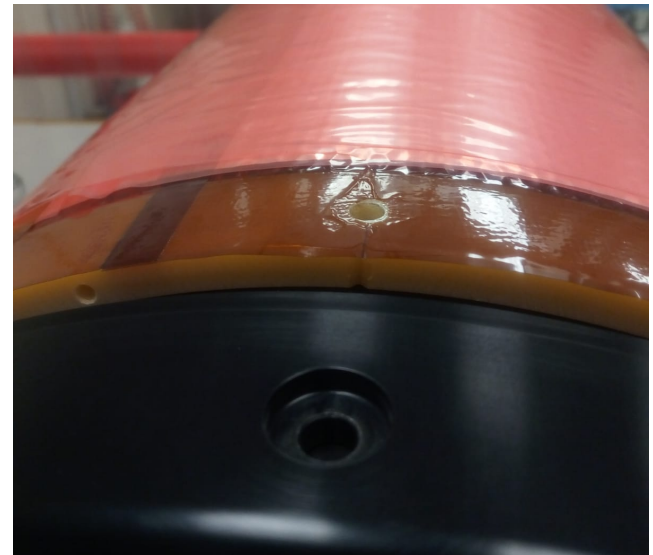
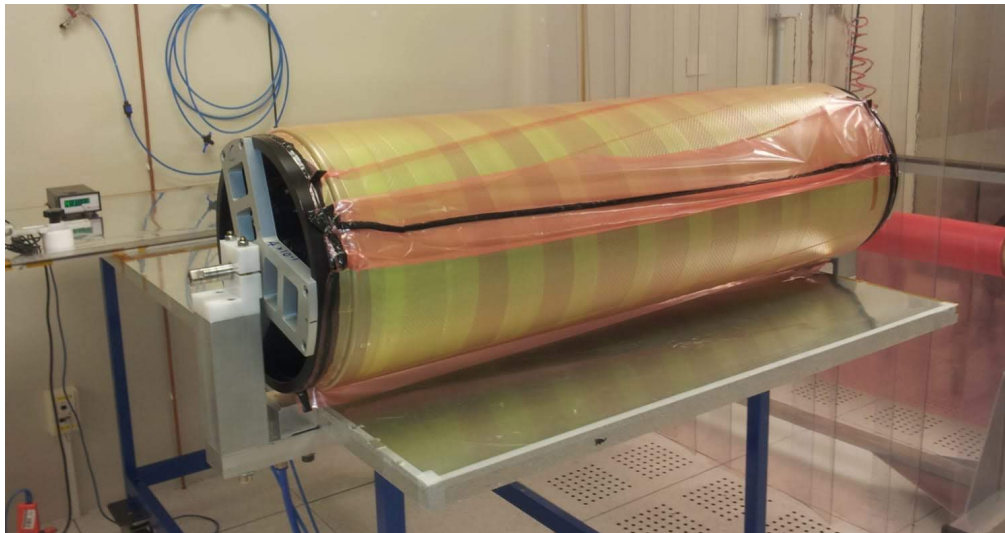
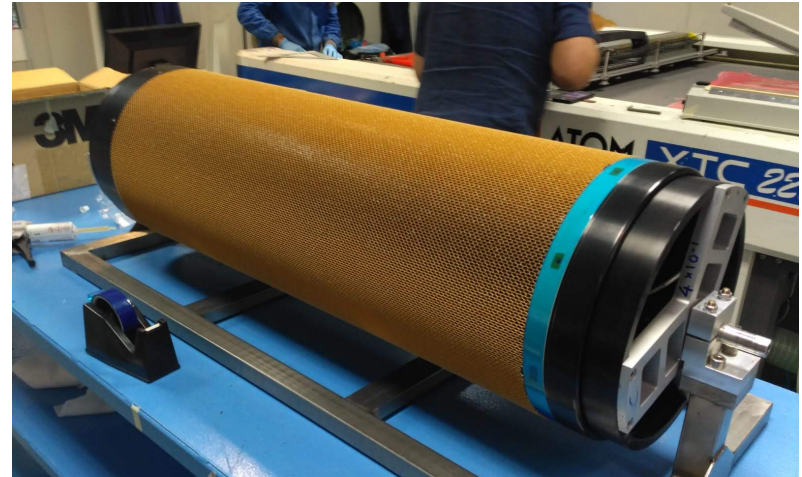
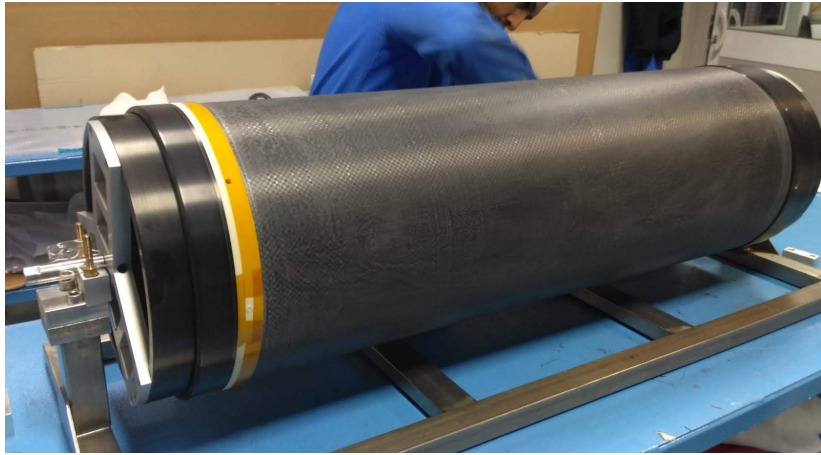
New L3 status

- ✓ VIM aligned for the 5 L3 molds
- ✓ molds are ready (vacuum tested)
- ✓ mid September: **cathode** foils ready at CERN → LNF
- ✓ **cathode** has been constructed with its structure in LOSON/LNF
 - ✓ one ring has been taken from an old (Rohacell) cathode in LNF
 - ✓ waiting for its second ring form Resarm
- ✓ October 19th: **GEM's** and **Anode** foils ready at CERN
 - ✓ Michele has checked them @CERN on 23rd → OK → @ LNF on 25th
- ✓ GEM's and anode foils: precise cutting done @LNF
- ✓ HV tests on GEM's started last week

New L3



New L3 Cathode



nL3 GEM tests

- 6/9 Gem have been tested: 3 Gem3, 3 Gem2
- all of them are below standard:
 - 5-6 channel have ohmic behaviour
 - many spikes at $V > 500-550V$ on most of the channels
- plan to finish the tests on Gem1 and then?
- what shall we do ? bring them back to Rui ?

nL3 schedule

- 4-8/11 anode preparation (rings, 2planar gluing+cylindrical gluing)
- 11-15/11: anode structure in LOSON / start GEM
- each CGEM: planar+cylindrical+external ring+fine gluing (H&V)
- with no contingency, if everything is fine on 25/11 we could start VIM operations with anode, G3, but having G1 not yet completed...
- by 20/12 VIM operations could be finished

nL1 anode and cathode structure

From inner to outer layer :

- Cathode composition (from inside to outside):
 - Kapton (50um) coated with Cu (5um)
 - honeycomb (2mm)
 - Cathodic circuit (50um+3um Cu)

- Anode composition (from inside to outside):
 - Anodic circuit
 - Carbon fiber (60um)
 - honeycomb (4mm)
 - Carbon fiber (60um)
 - ground plane (50um kapton + 5um Cu)

nL3 anode and cathode structure

From inner to outer layer:

- Cathode composition (from inside to outside):
 - Kapton (12um)
 - Carbon Fiber (60um)
 - Honeycomb (2mm)
 - Kapton (25um)
 - Cathodic circuit (50um+3um Cu)
- Anode composition (from inside to outside):
 - Anodic circuit
 - Carbon fiber (60um)
 - honeycomb (4mm)
 - Carbon fiber (60um)
 - ground plane & Faraday Cage: 5 (8?)um Cu (ground)+ 50um kapton+3um Cu (Faraday Cage)