



Mark #1 detector module update

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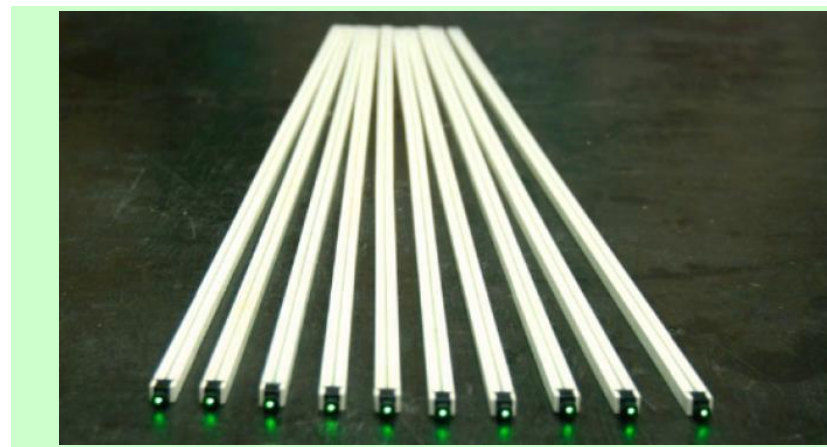
Mineev, L. Nicola

29 July 2015

Mark#1 Detector Modules

Plastic scintillator bars:

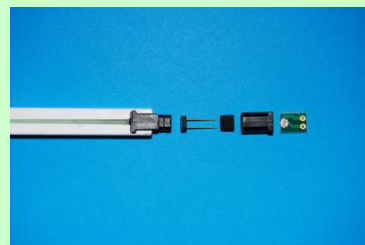
- Extruded scintillator slabs produced at **Uniplast company**, Vladimir, RU:
 - polysterene-based, 1.5% paraterphenyl (PTP) and 0.01% POPOP.
 - Slabs etched with chemical agent (Uniplast) to create a 30-100 mm layer that acts as a diffusive layer
- Custom optical connectors** (INR design for AIDA)
- Kuraray Y11 WLS fiber in 2mm deep groove
- Dimensions: 900 x 10 x 7 mm³



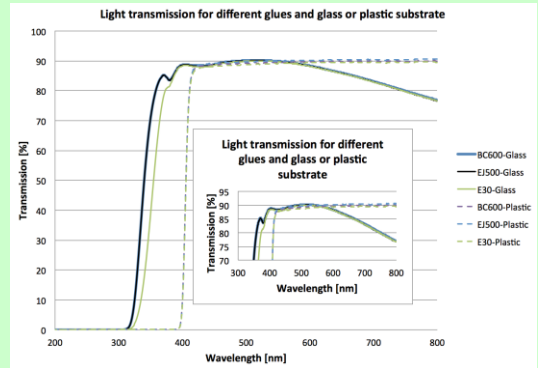
Photosensor connector: INR design

Module characteristics :

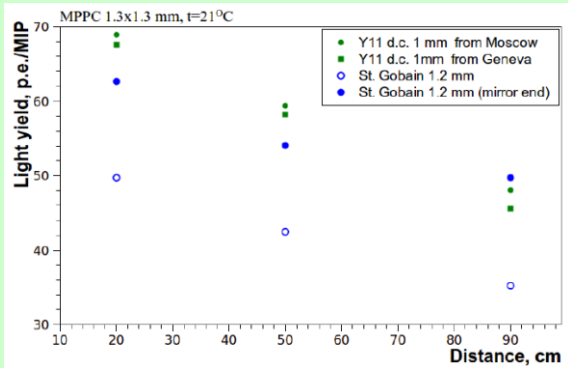
- 2 planes, X/Y
 - Each plane: 84 plastic scintillator bars
- 1st prototype **Nov. 2014**



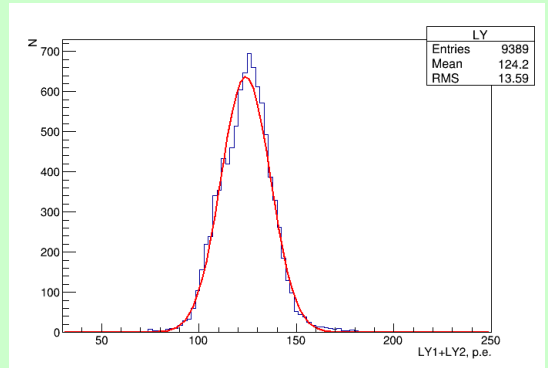
Optical cement light transmission



WLS fiber: St. Gobain & Kuraray Y11



Light yield measured for > 9000 bars



Mark#1 Module Assembly: bldg 595

Ongoing: Started 18 May 2015

Rate: 2 modules/working day

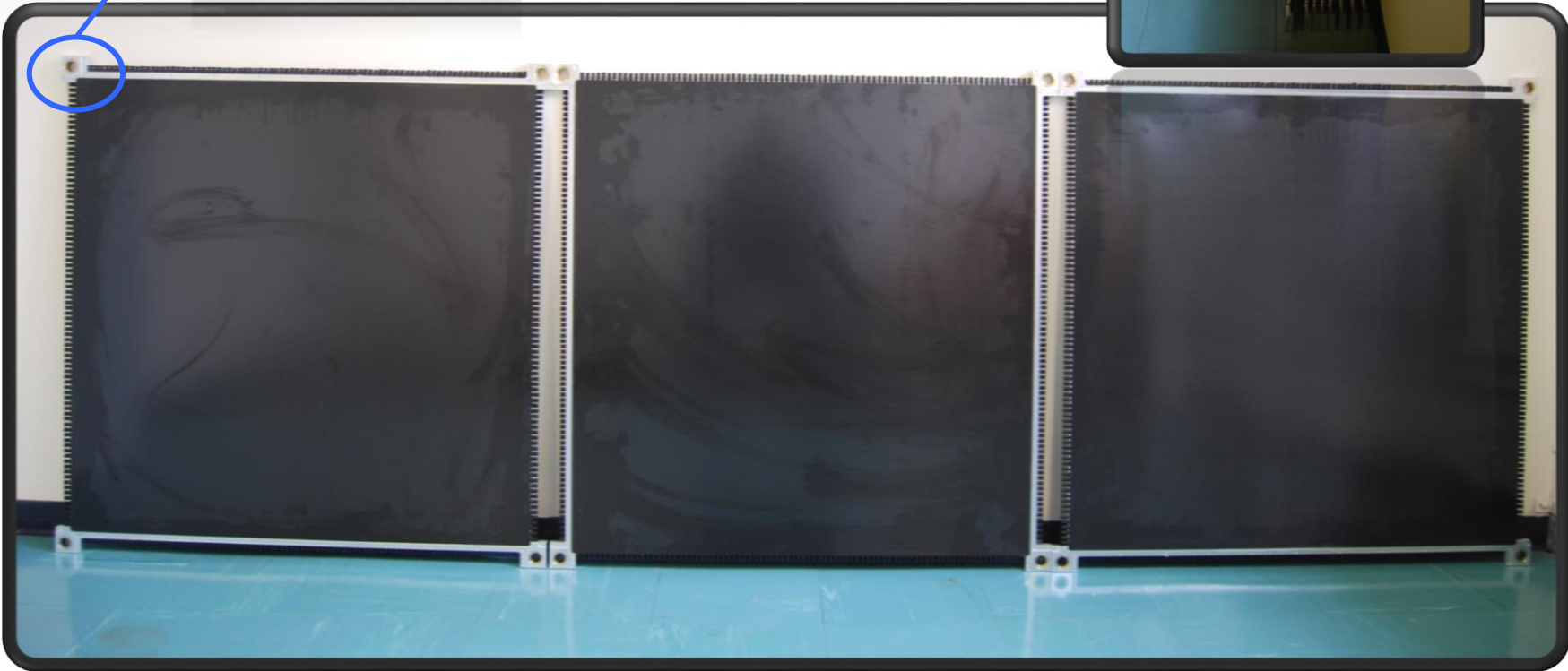
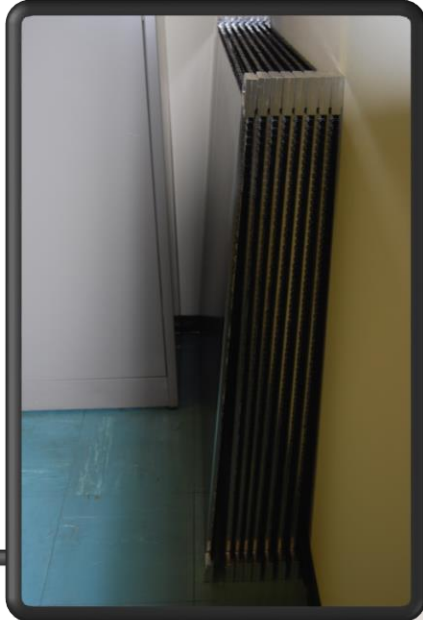
1 complete week, but only 1/3 weeks

... *due to other commitments at UniGe*

End: September 2015



Mark#1 Modules: 35 produced to date



- Mark #2 module design:
 - **larger area** $\sim 2.8 \times 2 \text{ m}^2$
 - **4 layers**, 2 X, 2 Y (c.f. 2 layers for Mark#1)
 - **Gaps** between adjacent bars
requires new approach for mechanical integrity
- Mark #2 module production
 - **more space** required, no longer feasible in bldg 595,
 - **crane** probably necessary.