

# FTM

# Test Beam in 2021

RD-51 Mini-Week

Feb 19 2021

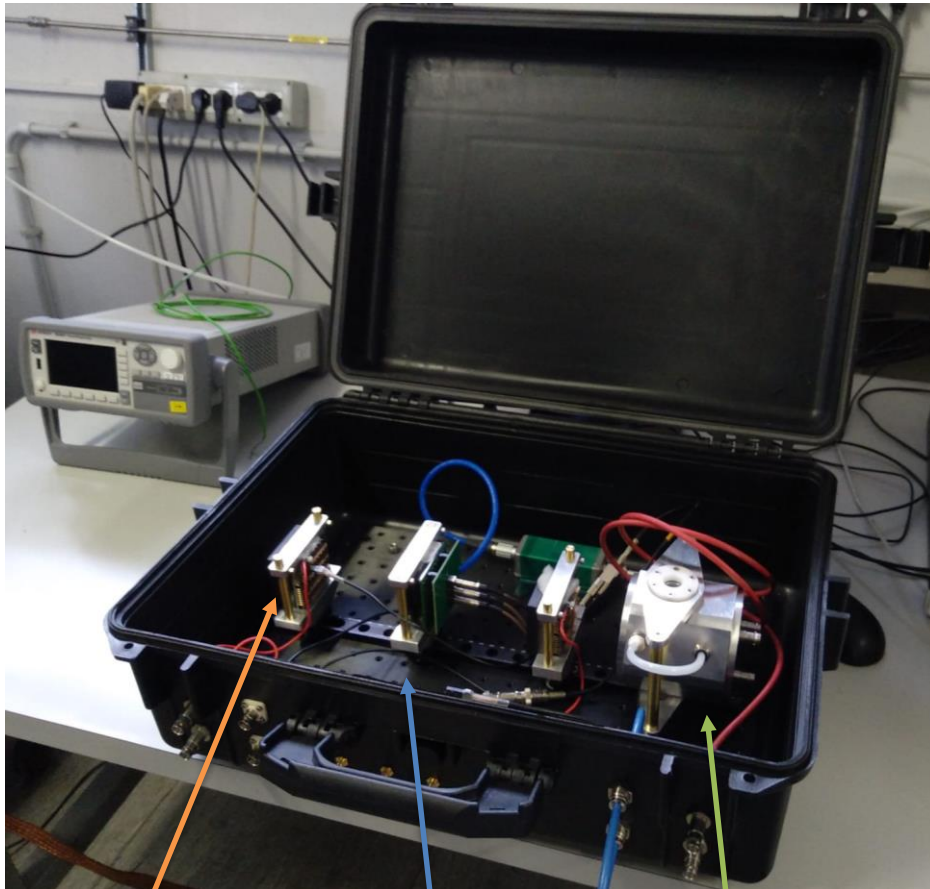
Antonello Pellecchia, [Piet Verwilligen](#)

INFN Bari



CERN, Feb 19 2021

# FTM Testbeam



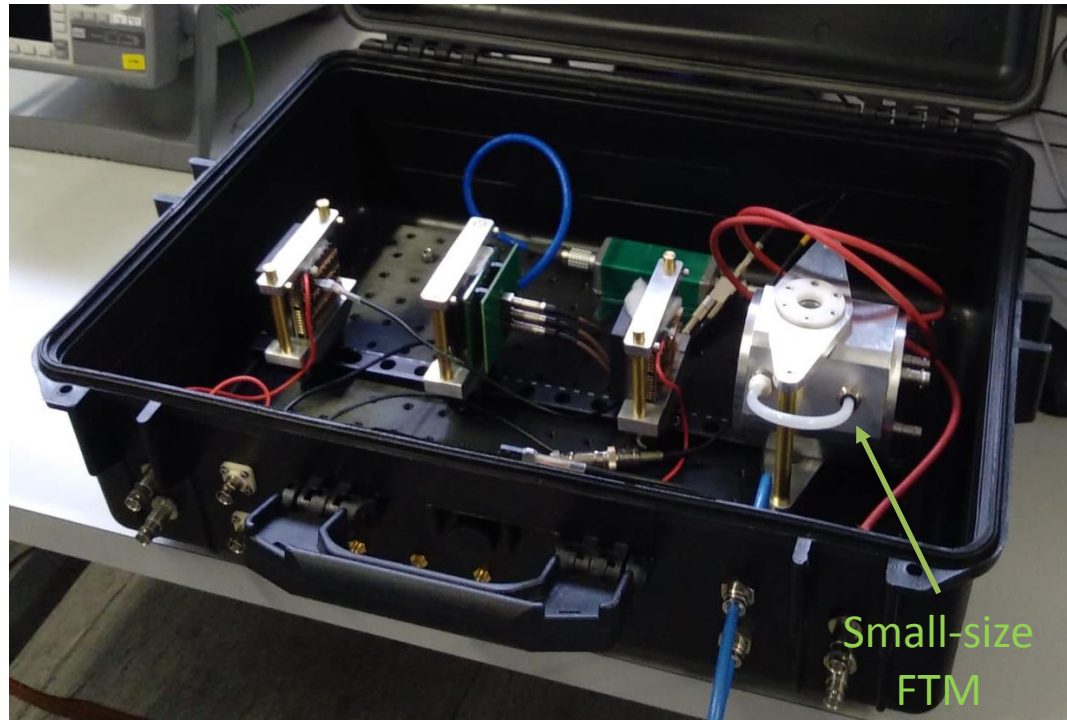
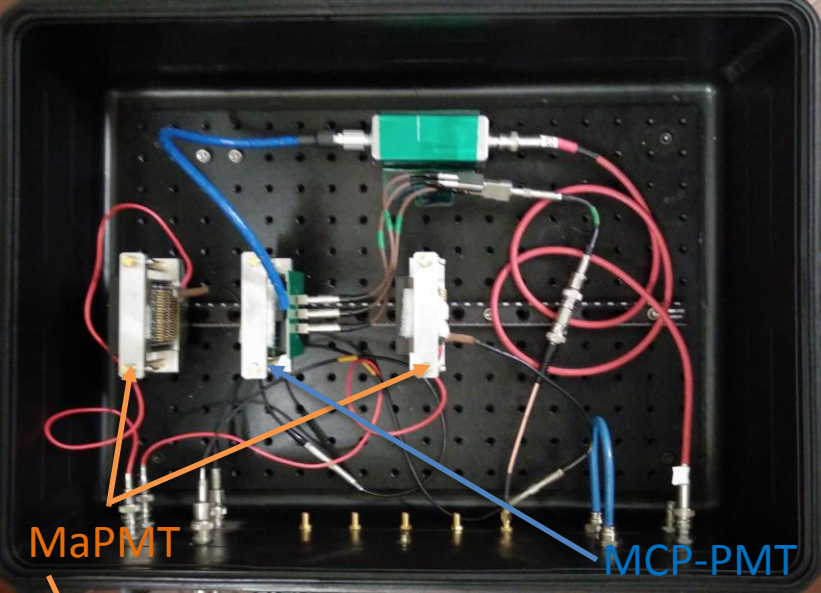
MaPMT  
H8500C  
 $\sigma_t = 150ps$

MCP-PMT  
XP85012  
 $\sigma_t = 37ps$   
5.3 x 5.3 cm<sup>2</sup>  
25um pores, 64 pixels

Small-size  
FTM  
 $\sigma_t \leq 1ns$

- Measurement of Efficiency & Time-Resolution of small-size FTM
  - Eventually add also larger prototype if ready
- FTM + MCP-PMT in dark box, to be lifted to beam height
- Readout : 4GHz scope with 20GS/s
- Trigger MCP-PMT + MaPMTs + veto scintillators with hole
- Beam Requirements:  $\mu, \pi$ , no B-field
- Intensity: few particles / spill (however happy to take low to high rate)
- Gas: whatever gives high gain
  - Ar:CO<sub>2</sub> 70:30. (so likely not this one)
  - Ne:C<sub>2</sub>H<sub>6</sub>:CF<sub>4</sub> 80:10:10 (compass)
  - Ne;<sub>i</sub>C<sub>4</sub>H<sub>10</sub> 90:10
- Urgency: project finishes in 2021!
- Requirements:
  - 2 weeks in Fall (together w/ CMS-GEM)
  - Geometry Survey beam alignment
  - Authorization for flammable gases
  - Table to lift box to beamheight
- Length: 1m



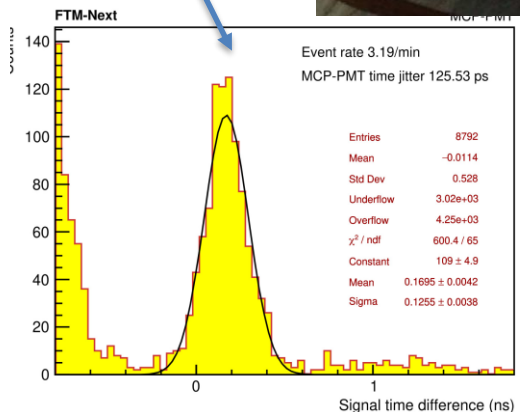
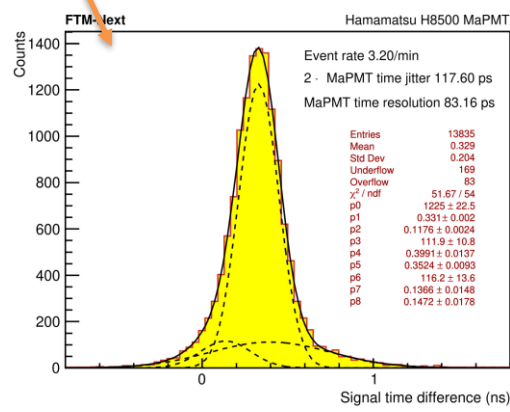


MaPMT

MCP-PMT

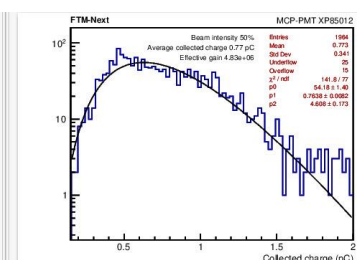
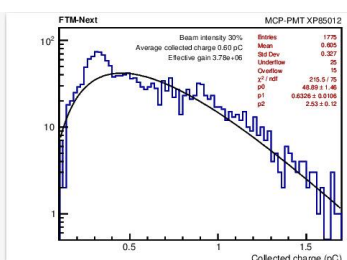
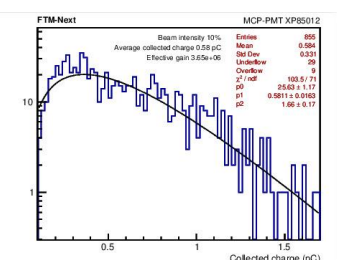
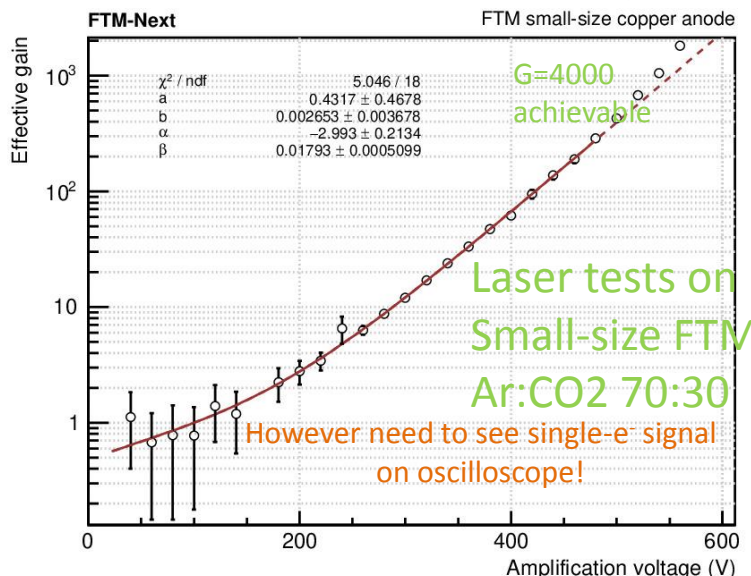
Small-size FTM

Cosmic Ray tests



More info in presentation of Antonello in next RD-51 Meeting

Laser tests --- Searching for Single-Photon regime





If it doesn't work ...  
*I'll hide*