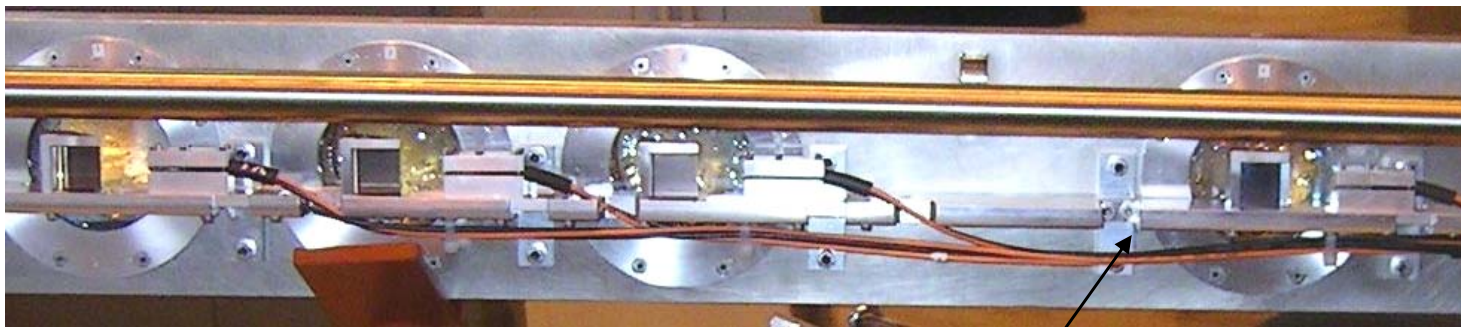


Comparison of Scintillating Fiber and Diamond Detector Data

T. Tsang
BNL
(Nov. 9, 2009)

Scintillating fiber channel #0



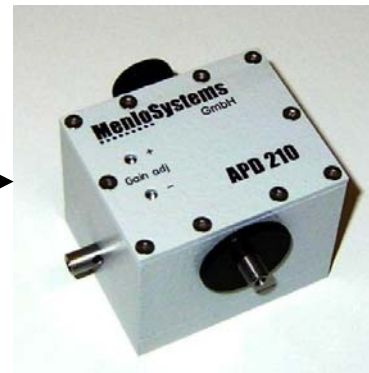
scintillating fiber



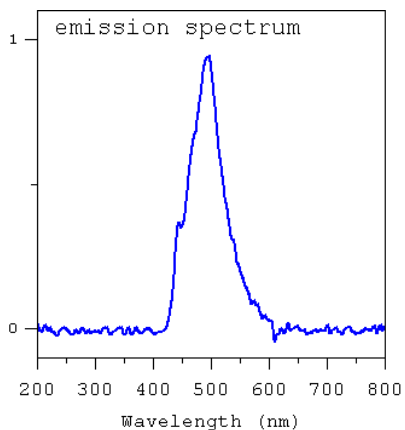
2 meter long, BCF-20, 1-mm diameter blue emitting scintillating fiber



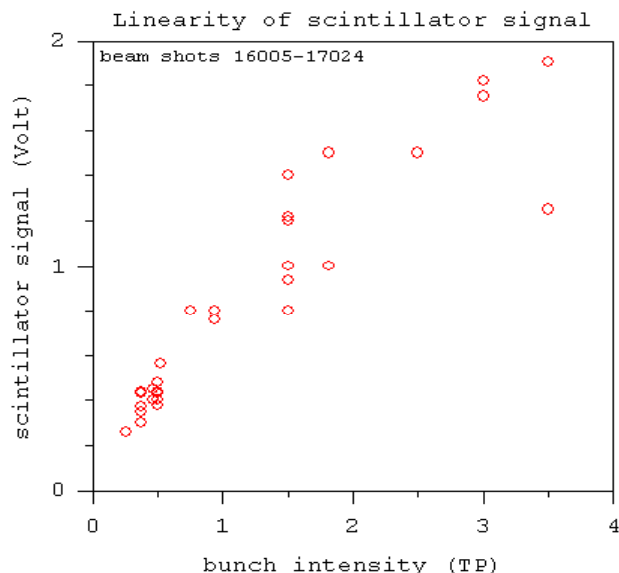
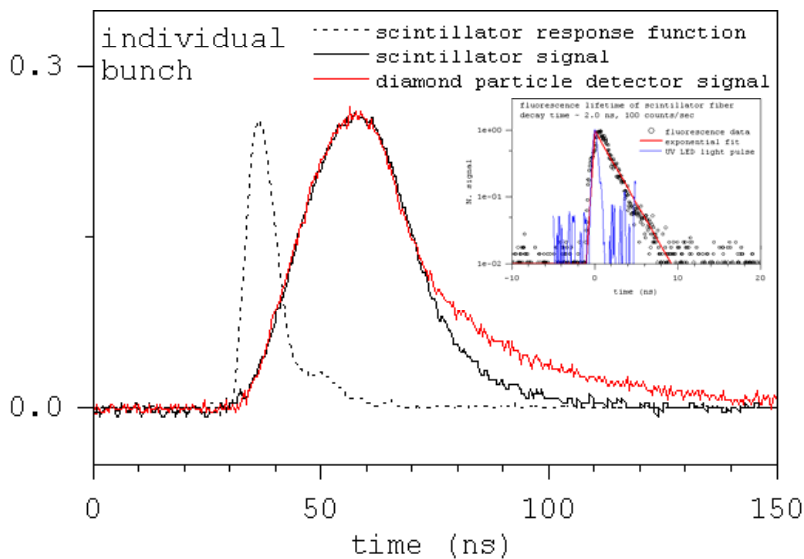
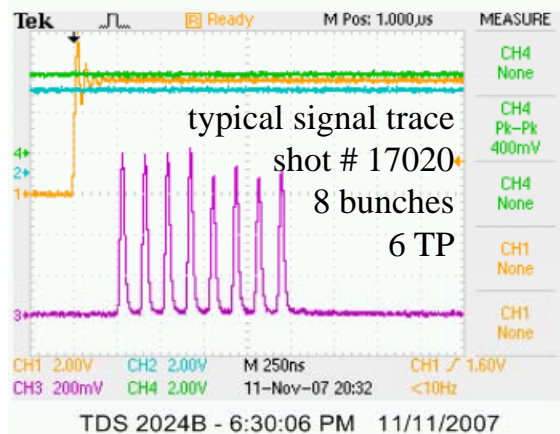
12 meter long, 1-mm diameter BFH37-1000 fiber, blue T=0.77



Avalanche photodiode



plastic scintillating fiber
 Saint-Gobain BCF-20
 1/e length >3.5 meter
 fluorescence decay time ~ 2.5 ns
 ~8000 photons/Mev

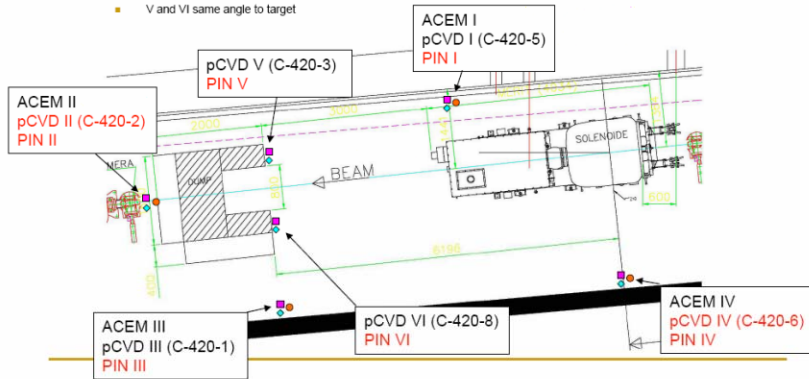


Diamond particle detectors

Detector positions

- 8 active detectors
- 6 positions
 - Measure symmetry in secondary particle flux:
 - I and III same angle to target
 - V and VI same angle to target

- ACEM: 4/4
 - pCVD: 4/6
 - PIN: 0/6
- Connected
Not Connected

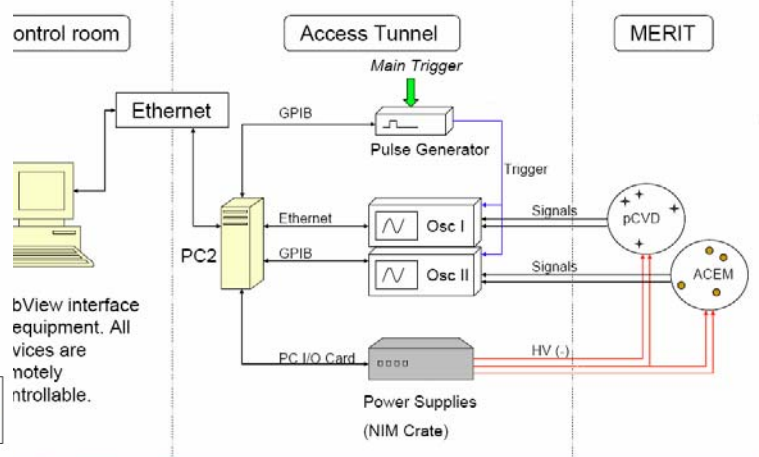


July 18, 2007

M. Palm, CERN - AB/ATB/EA

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Communication



bView interface equipment. All vices are notably ntrrollable.

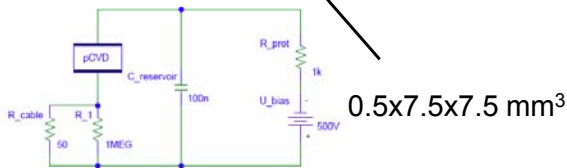
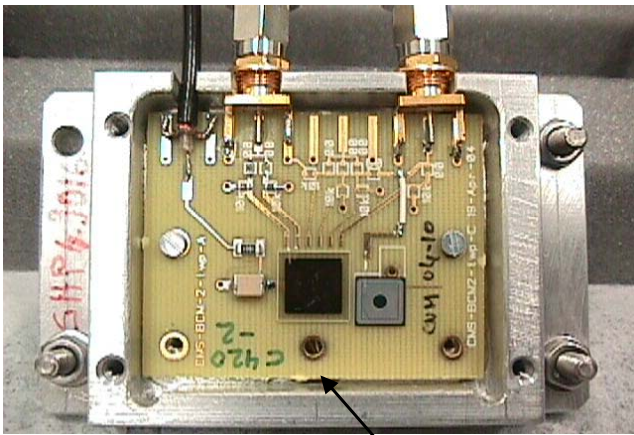
7 March 2007

Marcus Palm, AB/ATB/EA, CERN

6

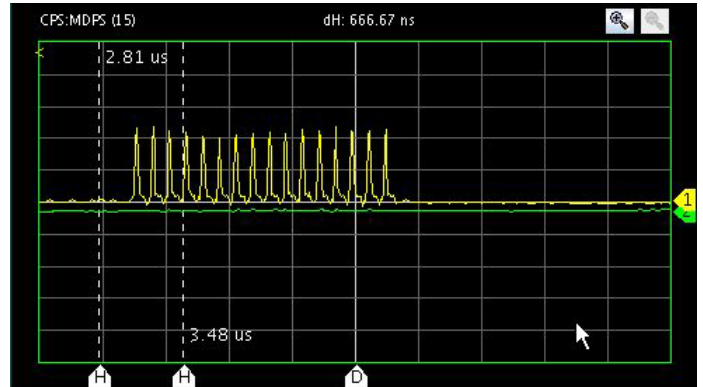
M. Palm Thesis:

http://www.hep.princeton.edu/~mcdonald/mumu/target/Palm/MPalm_AB_note.pdf

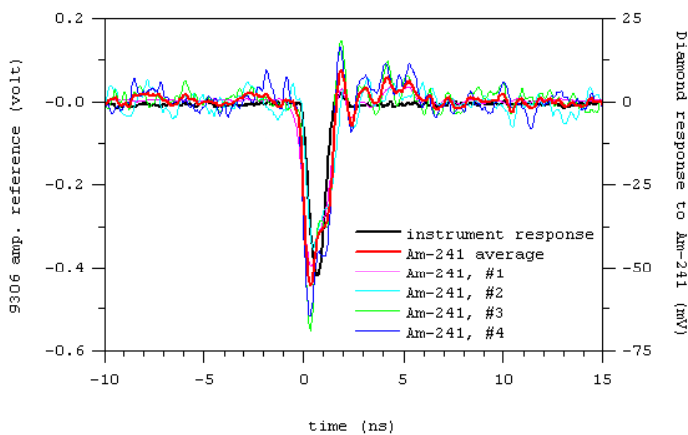


0.5x7.5x7.5 mm³

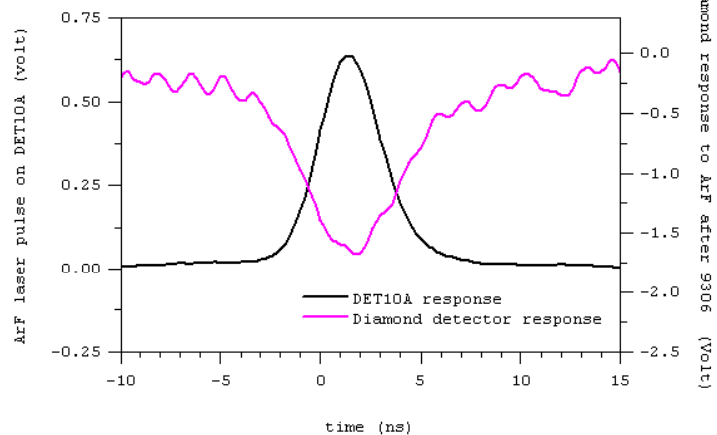
typical diamond detector signal



response with α source Am-241



response using ArF 193 nm UV laser



Correlation of scintillator & diamond particle detector signal

Nov 4 2009

Nov. 11, 2007, 17000 series data

Red: x, diamond particle detector signal @ left 20°

Black: y, scintillator detector signal

diamond left 20°

calculated correlation
of peak height

$$\text{Correl}(X, Y) = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}}$$

