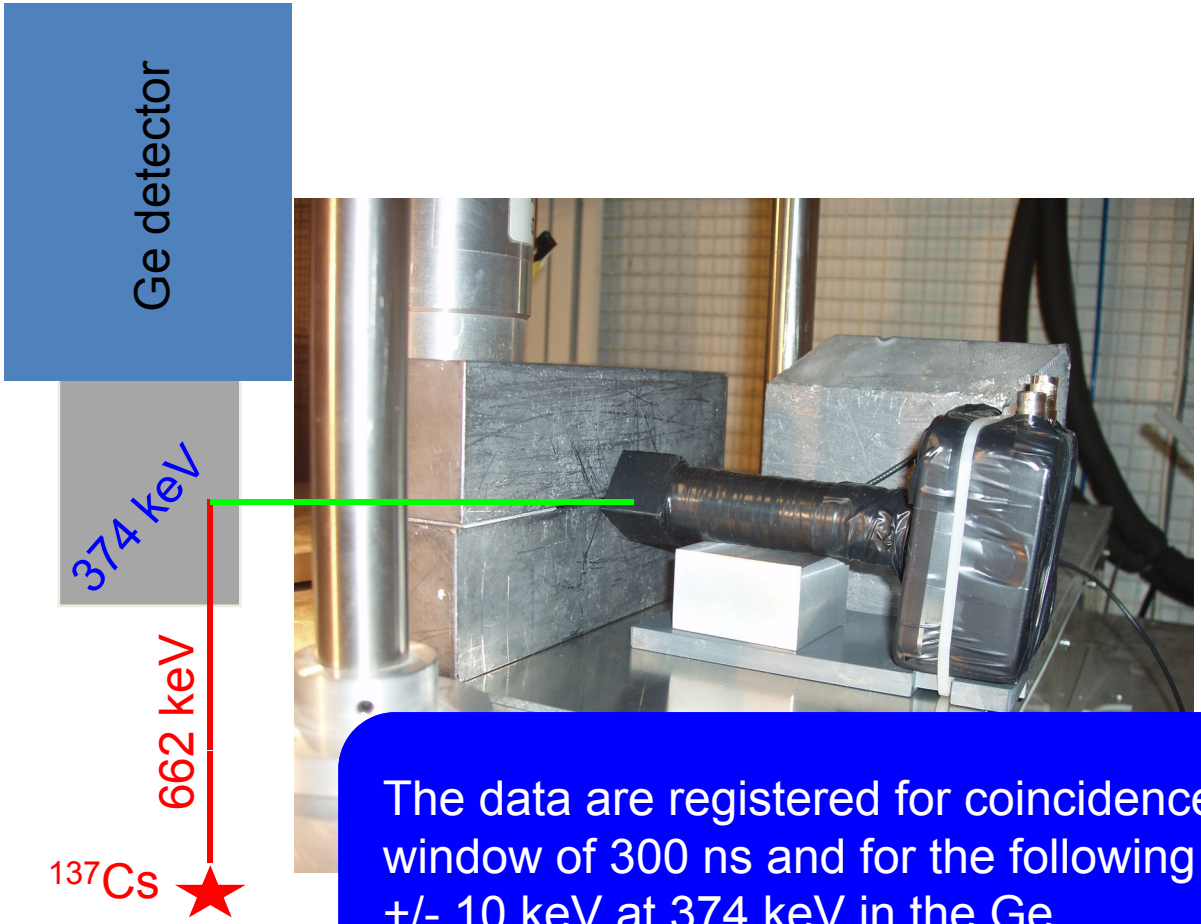
IPHC scanning table, collaboration with GSI and future plans

F. DIDIERJEAN, G. DUCHENE and M.H. SIGWARD *IPHC*
C. DOMINGO PARDO, J. GERL and N. GOEL *GSI*

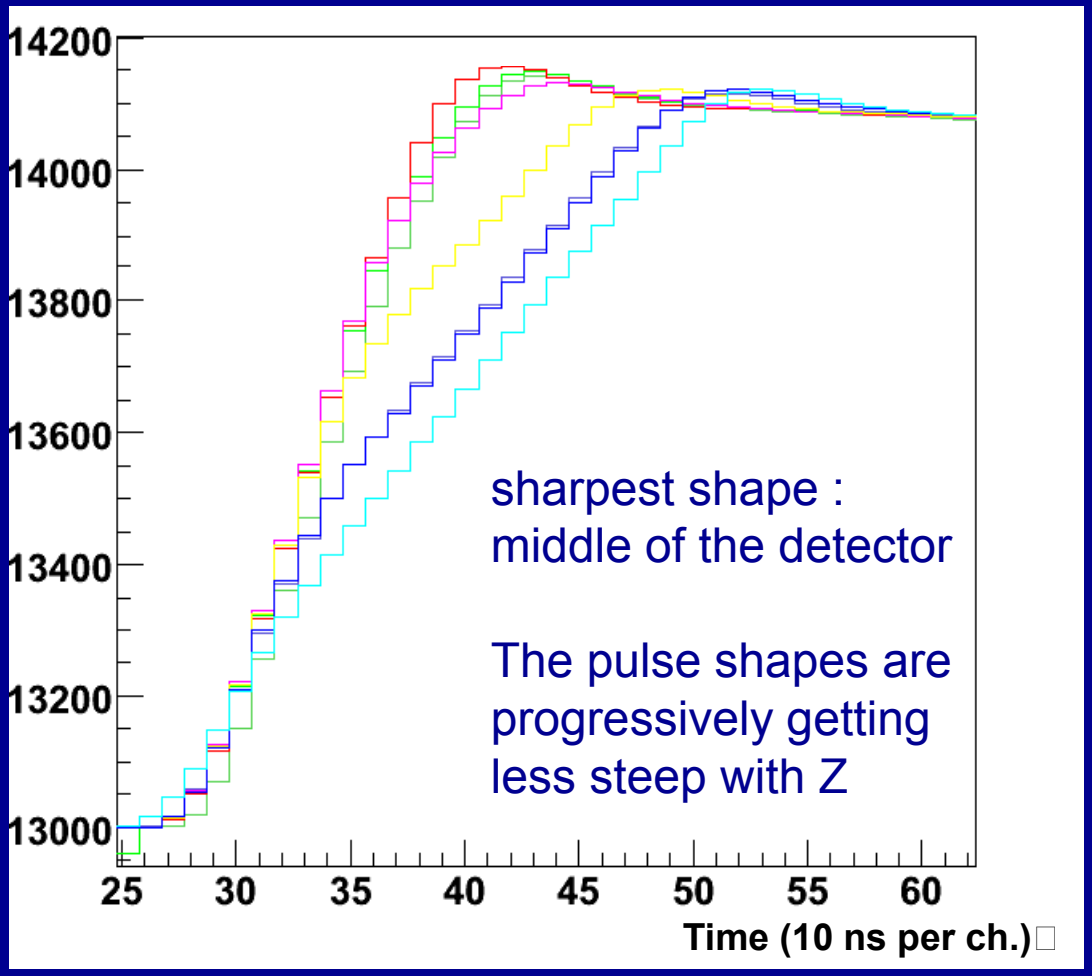
AGATA WEEK, Legnaro
20 – 22 january 2010

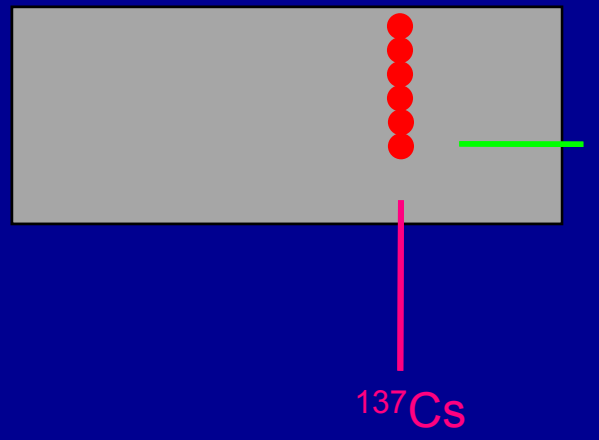
Ge planar detector – IPHC set up for Cs scan



The data are registered for coincidences within a window of 300 ns and for the following energy gates :
+/- 10 keV at 374 keV in the Ge
+/- 100 keV at 290 keV in the BGO

Average pulse shapes from IPHC scan





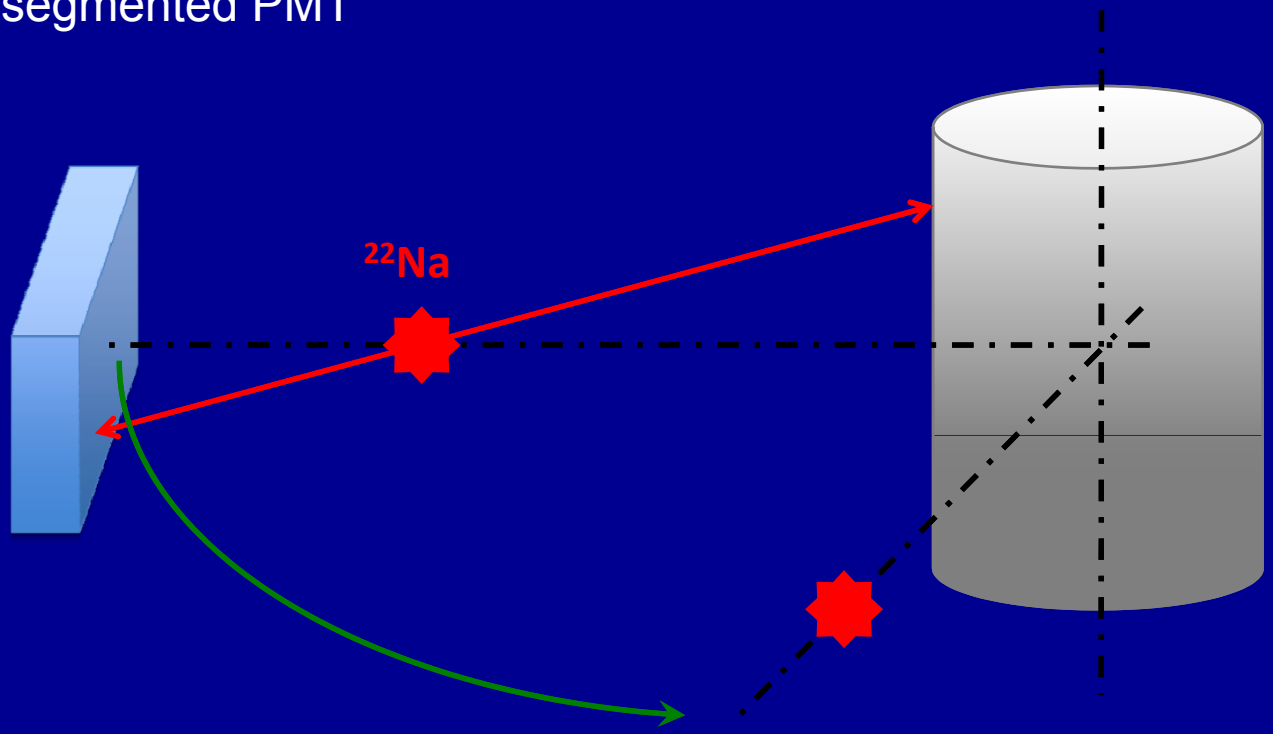
scan start at 6 mm to 19 mm

19 mm
16 mm
14 mm
11 mm
9 mm
6 mm

Principle of the GSI scanning method

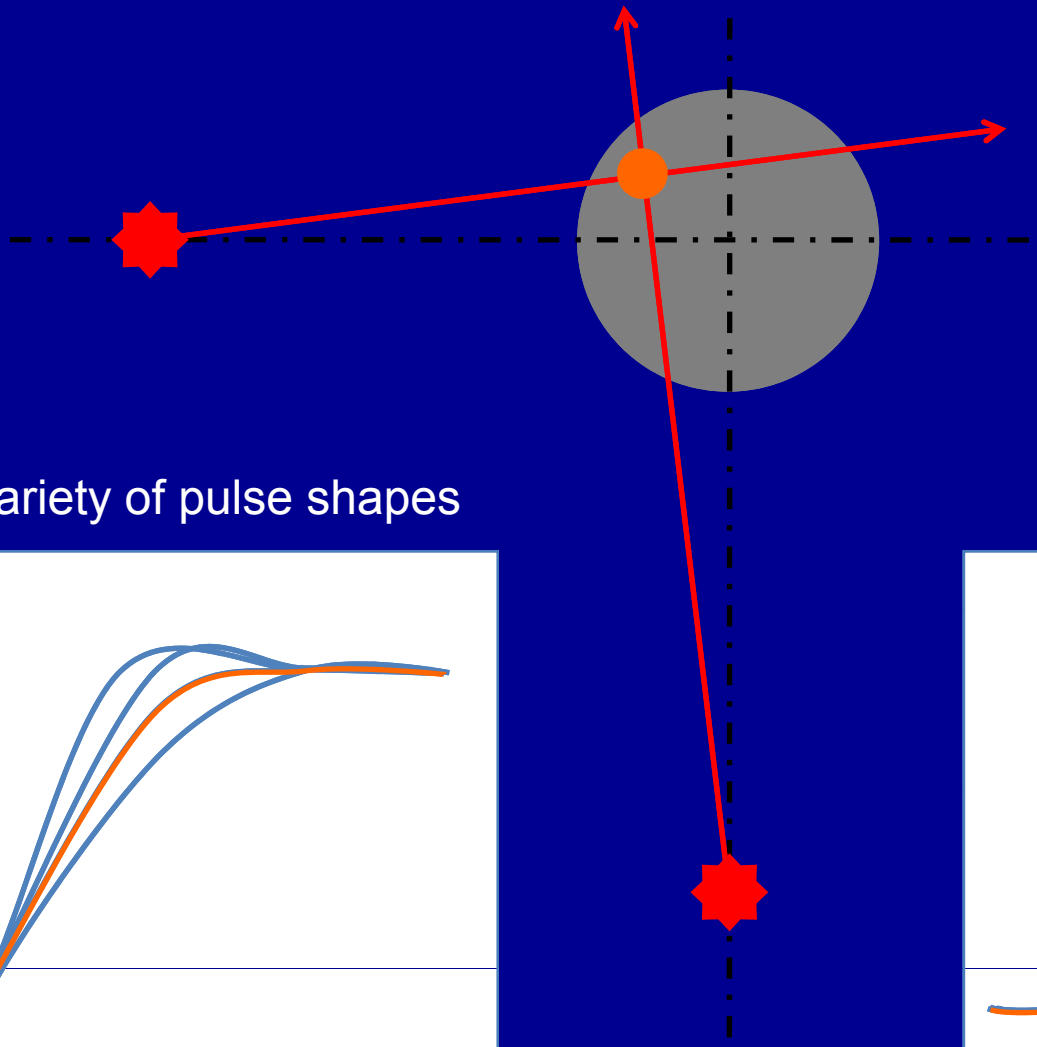
It is a generalised Crespi's scanning method

The position sensitive detector is a LYSO scintillator coupled to a segmented PMT



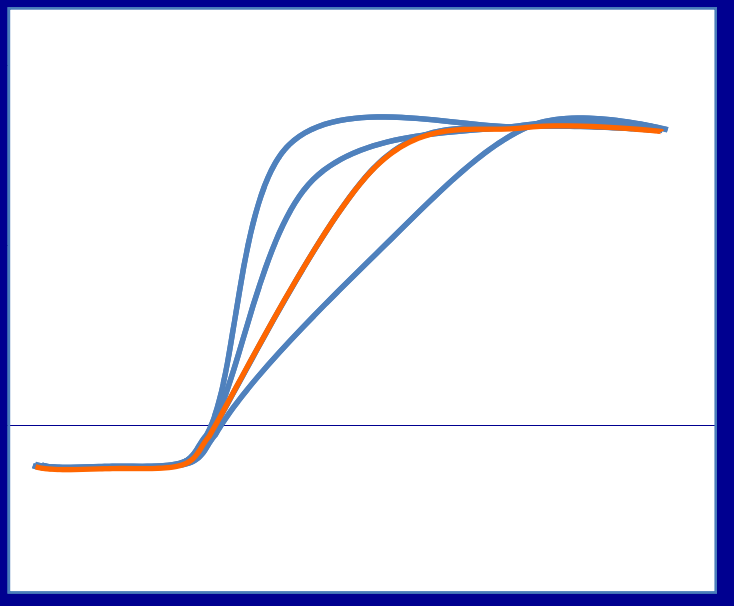
The main advantage of this method is that the whole crystal can be scanned in one shoot

Principle of the GSI scanning method

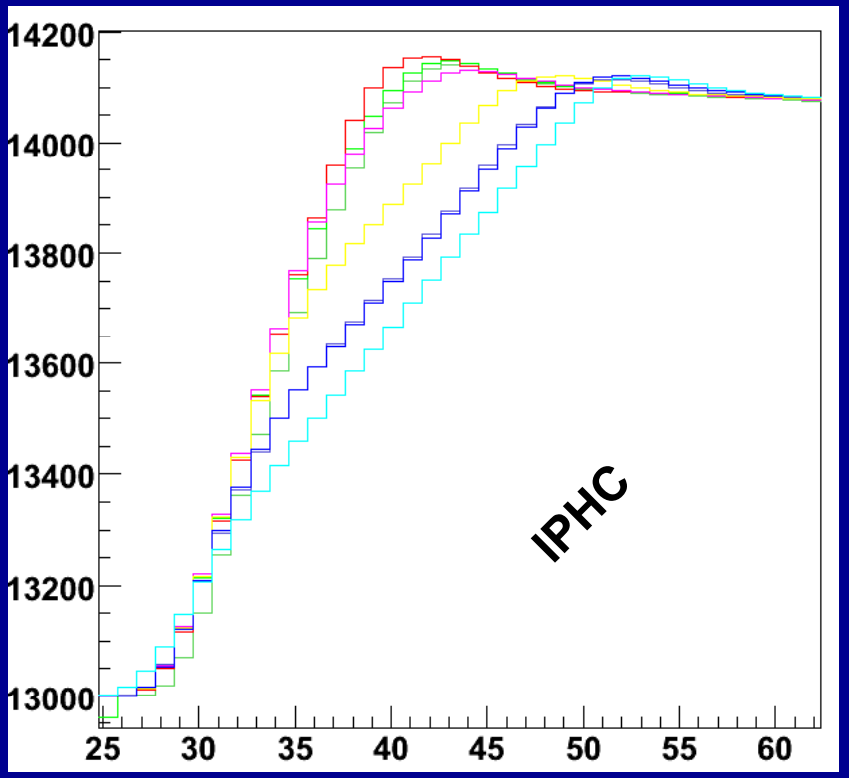


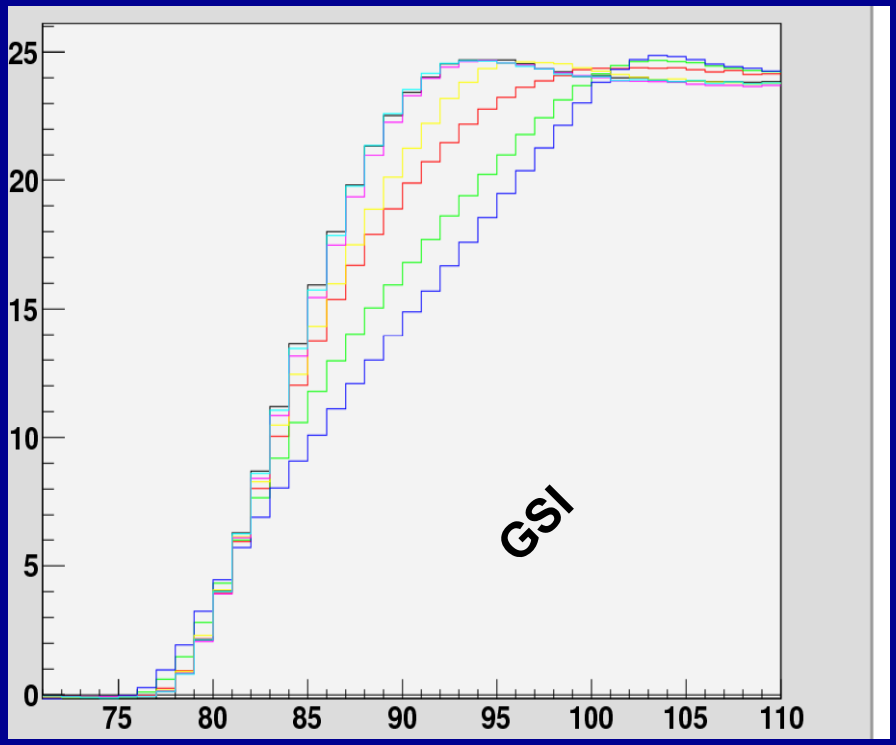
A large variety of pulse shapes

The identical pulse shapes come from the crossing point of the 2 paths of the γ-rays.



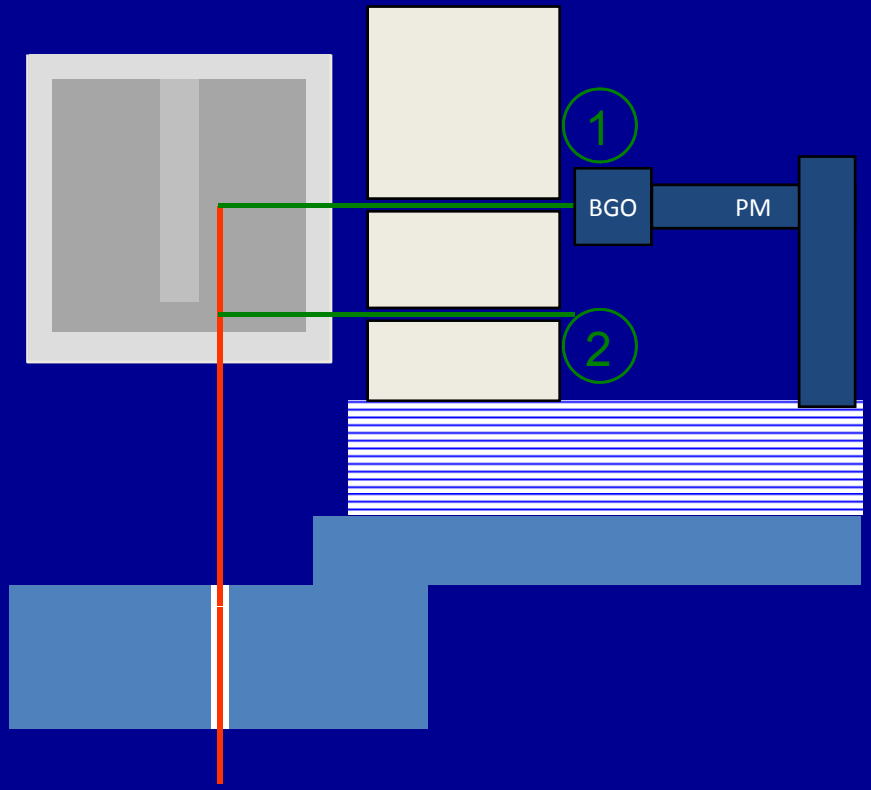
Comparison between the two scanning methods



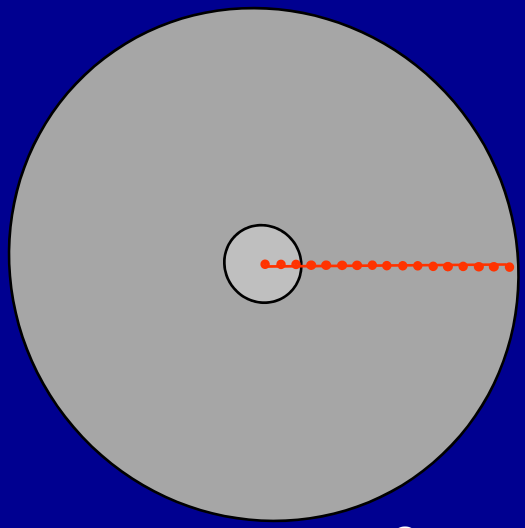


Time (10 ns per ch.)

Non segmented coaxial detector



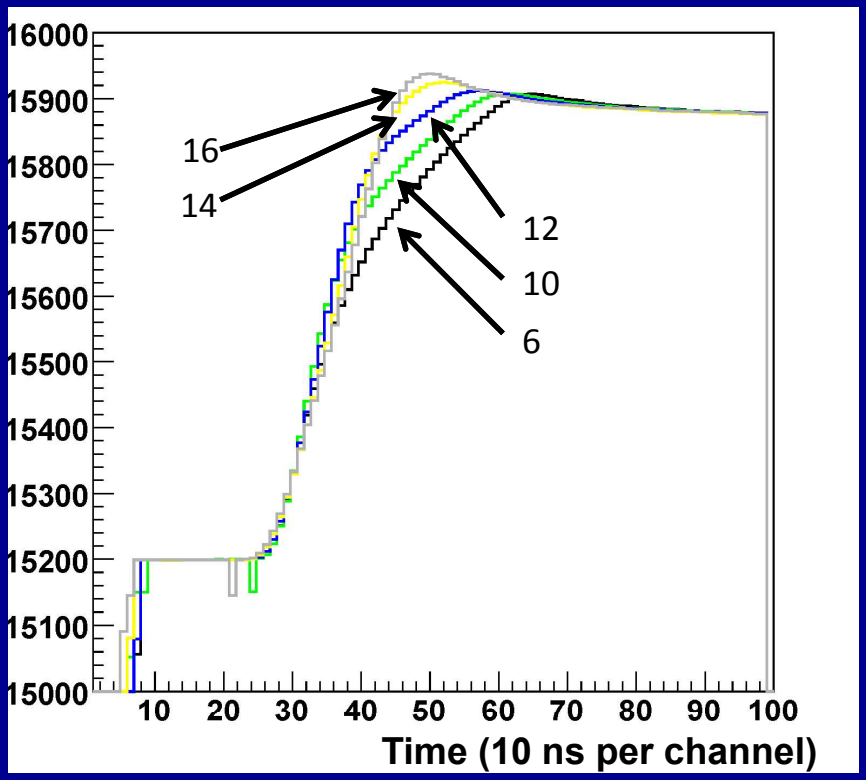
a horizontal scan as been done along the radius at 2 heights :
h = 33 mm (coaxial field)
h = 5 mm (distorbed field)

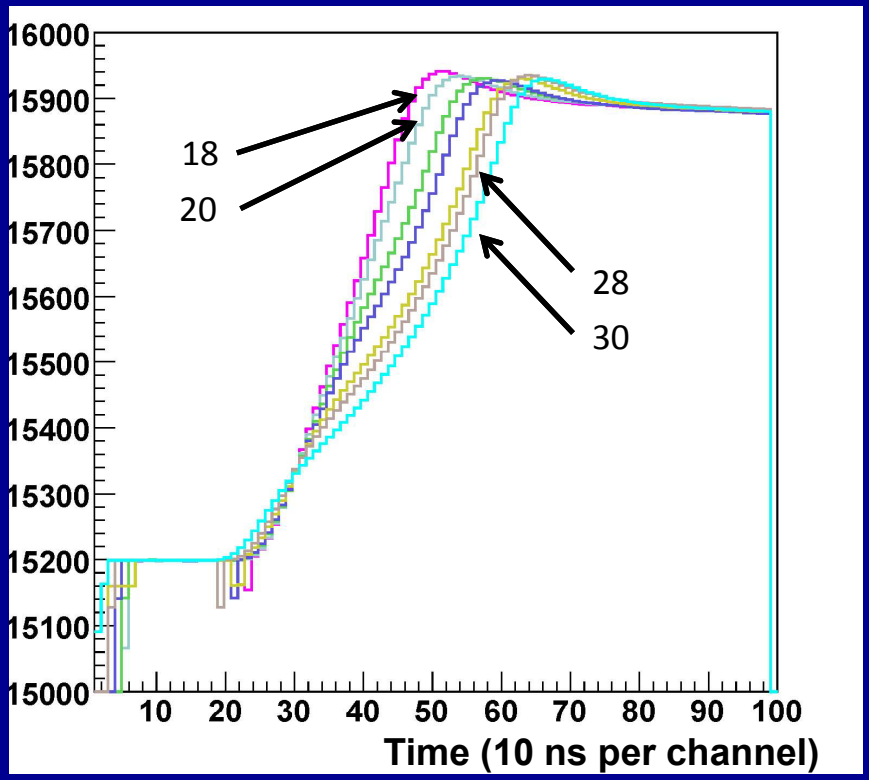


2 mm steps

Average pulse shapes from IPHC scan (1)

h = 33 mm

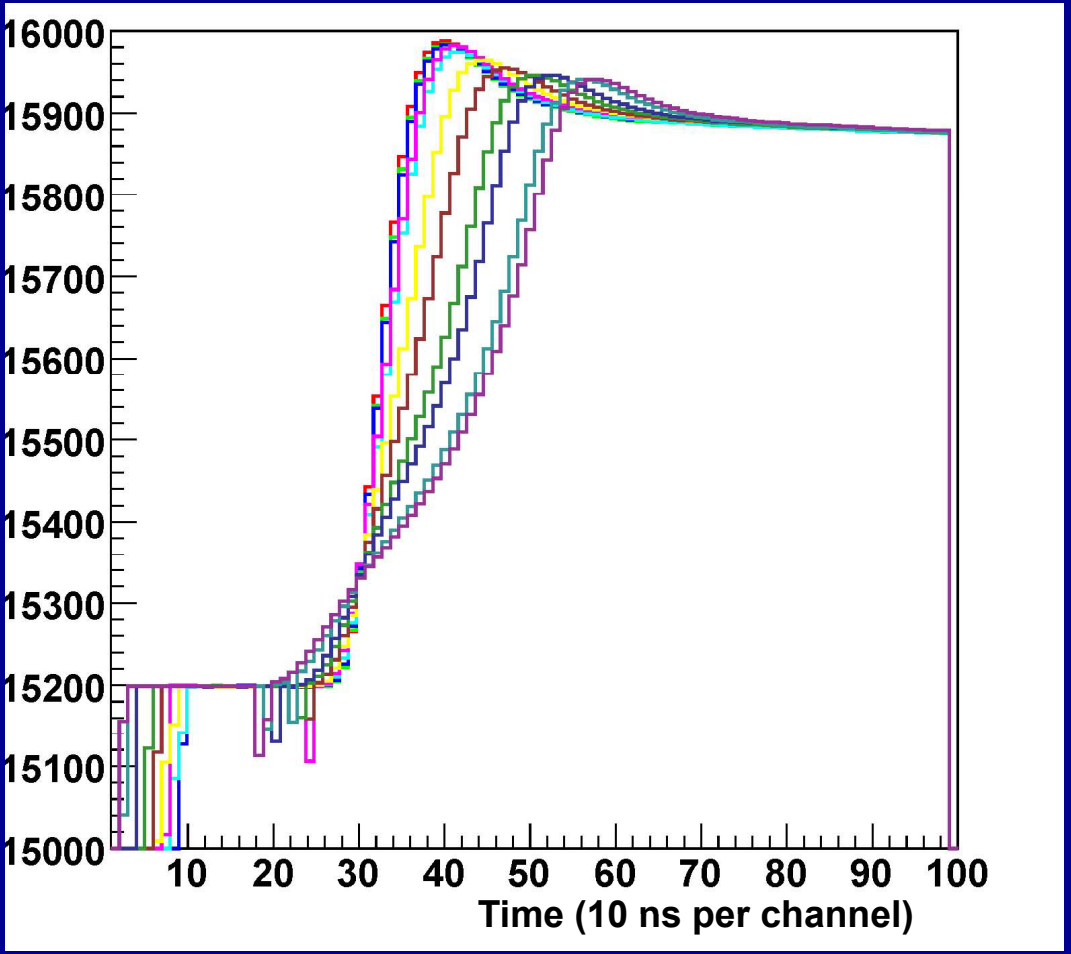




progressive change of
the pulse shape with R

Average pulse shapes from IPHC scan (2)

h = 5 mm



TO DO list 2010 :

. Crespi's scan of the non segmented coaxial detector
. IPHC scan of a segmented planar detector (Strg)
. GSI scan of the non segmented coaxial detector and of the segmented planar detector
. Comparison between the different scanning methods

. Awaiting a financial support in 2010 from IPHC and "region Alsace" to build the final geometry of the scanning table of Crespi's style or GSI style.