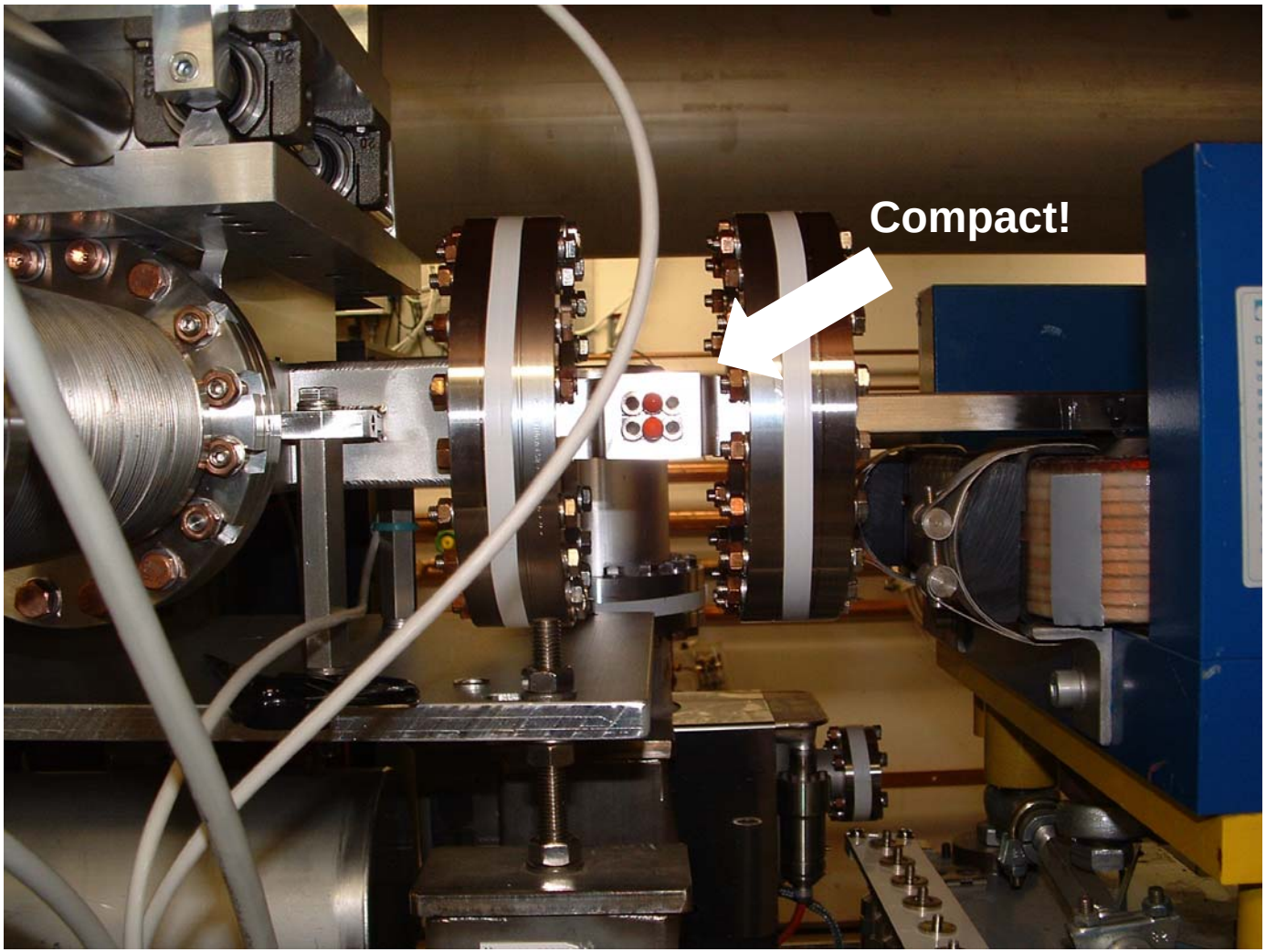
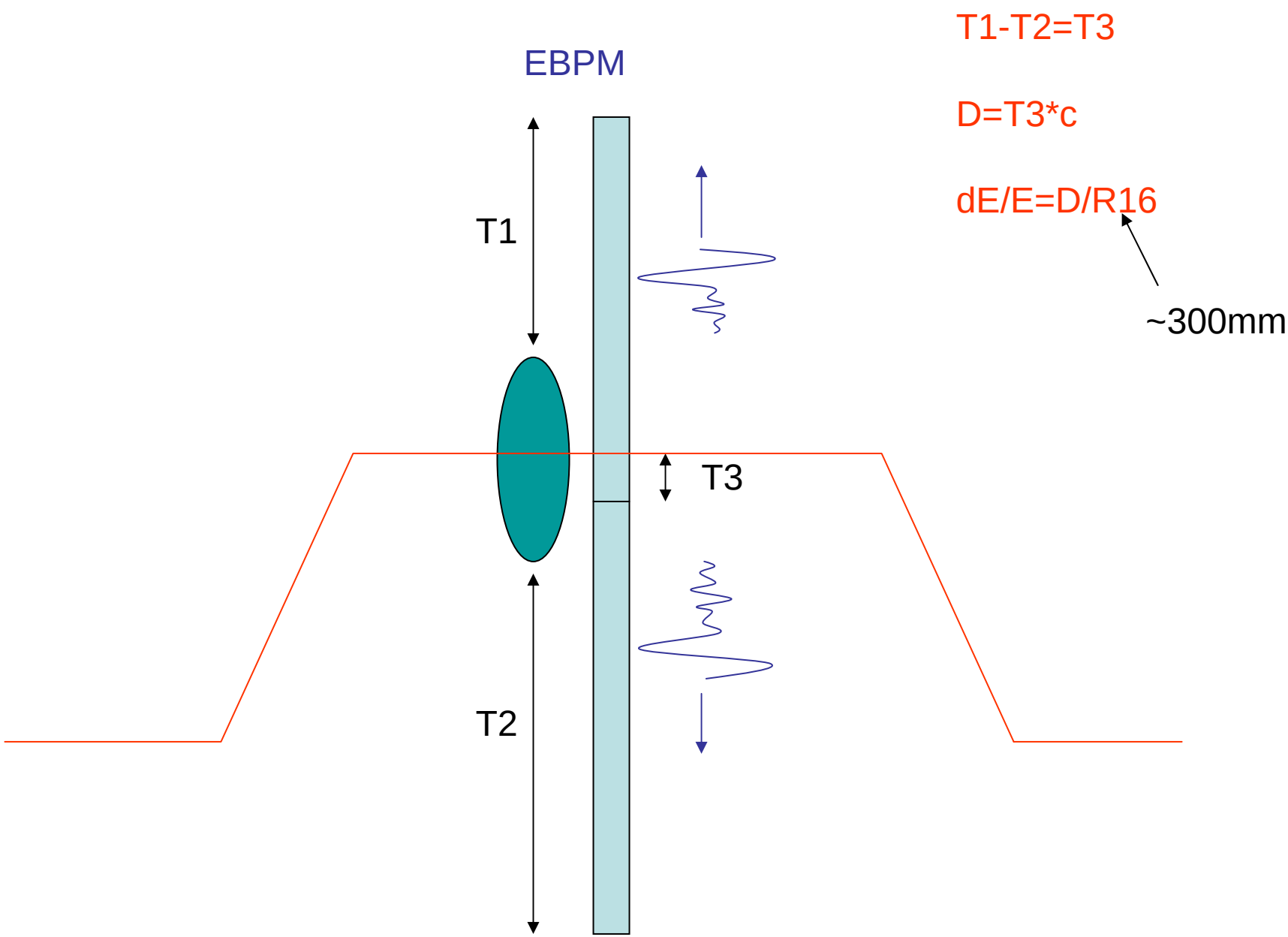
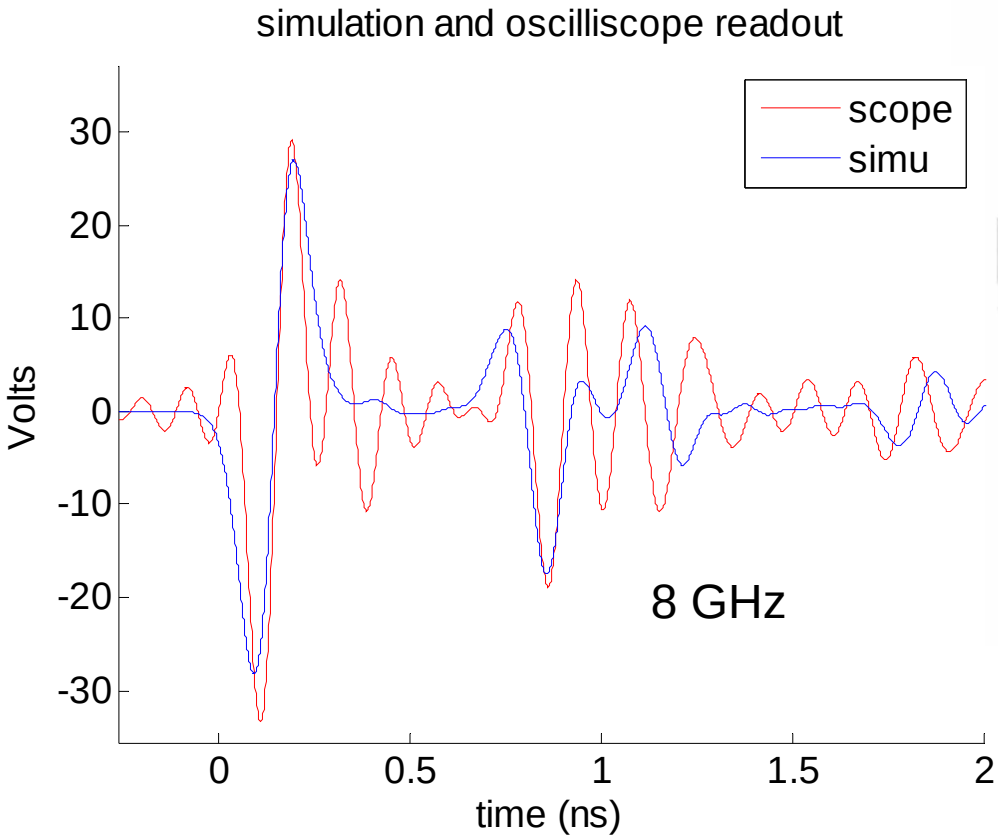
New BPM installed in BC2

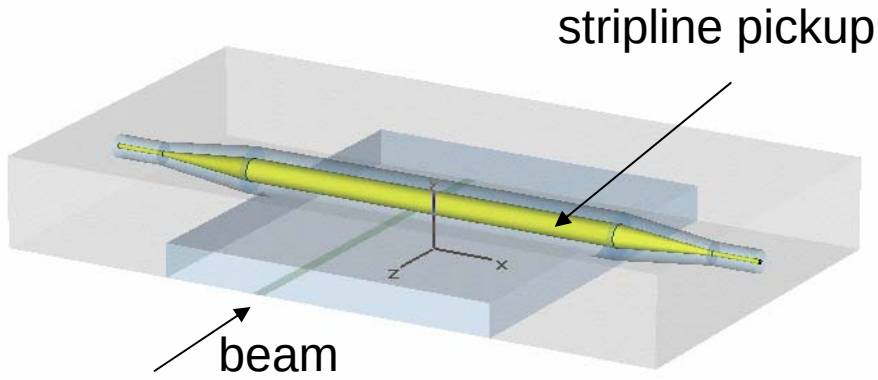


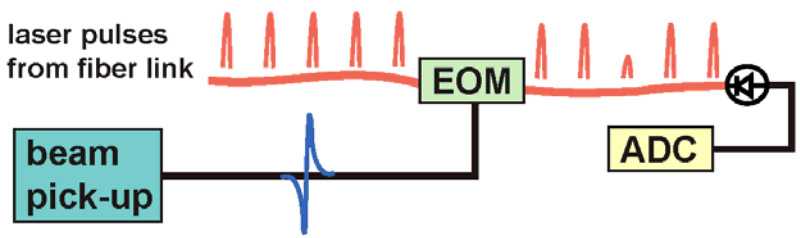
Thanks to:

Jan Hauschildt
Dirk Noelle
Silke Vilcins
Holger Schlarb
Nils Mildner
Christopher Gerth
And many more…

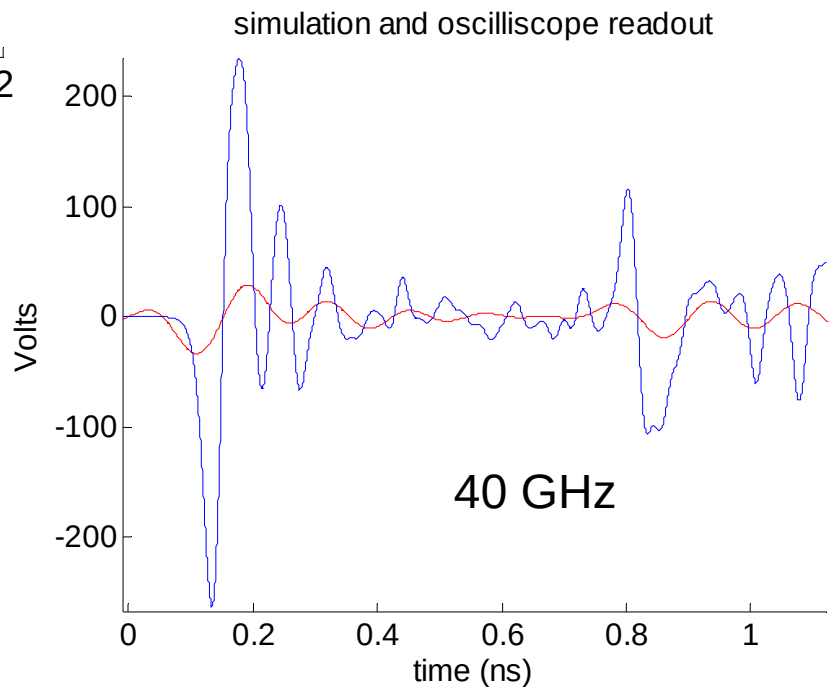

EBPM
T1-T2=T3
D=T3*c
dE/E=D/R16
~300mm
T1
T3
T2

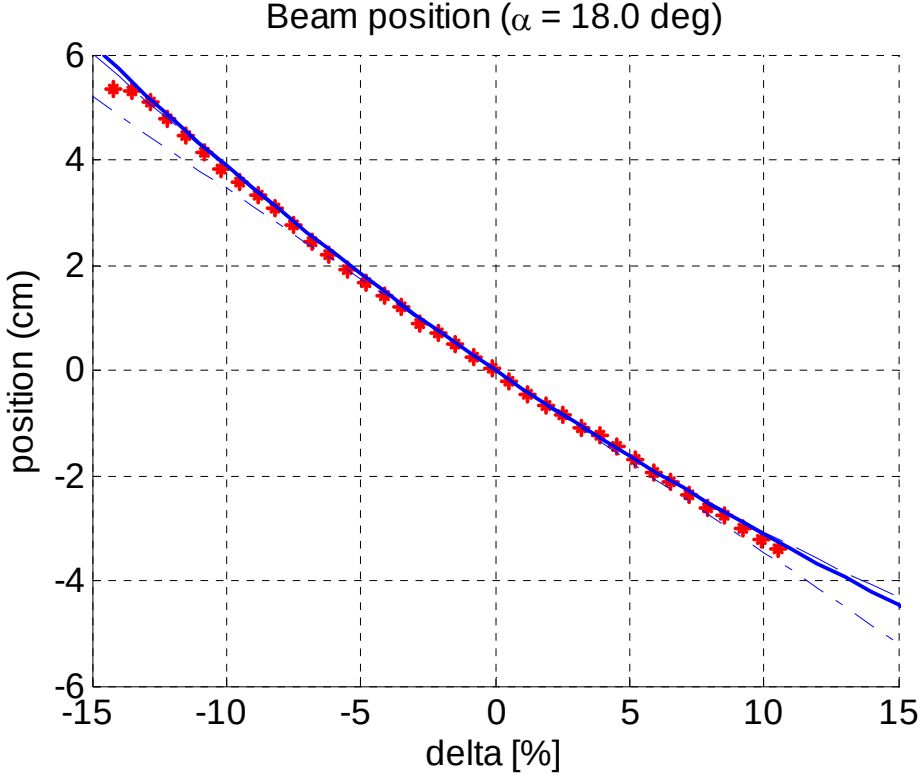






resolution < 3um

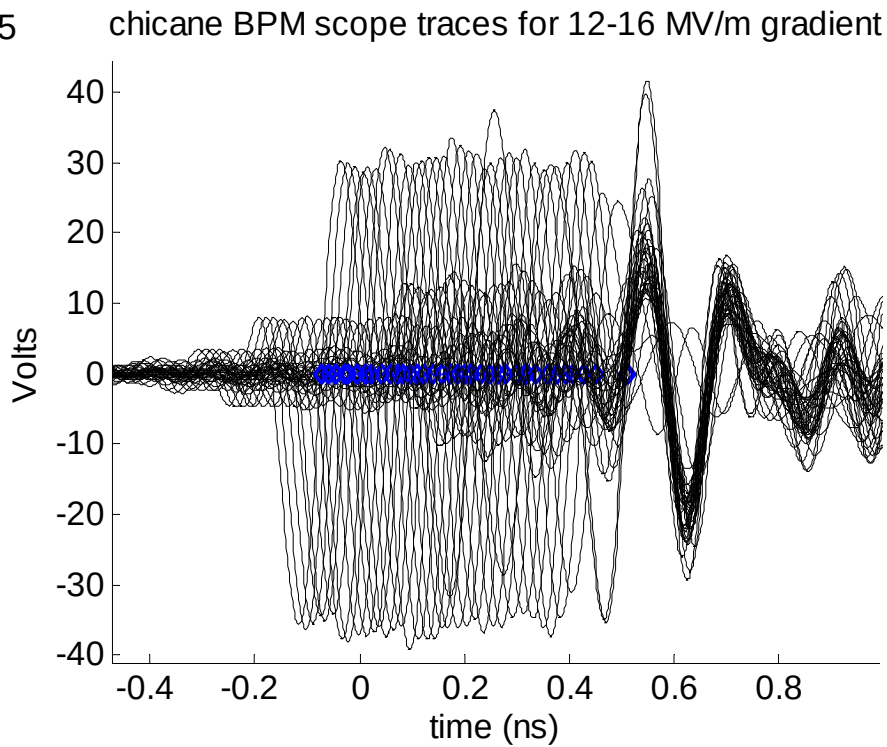


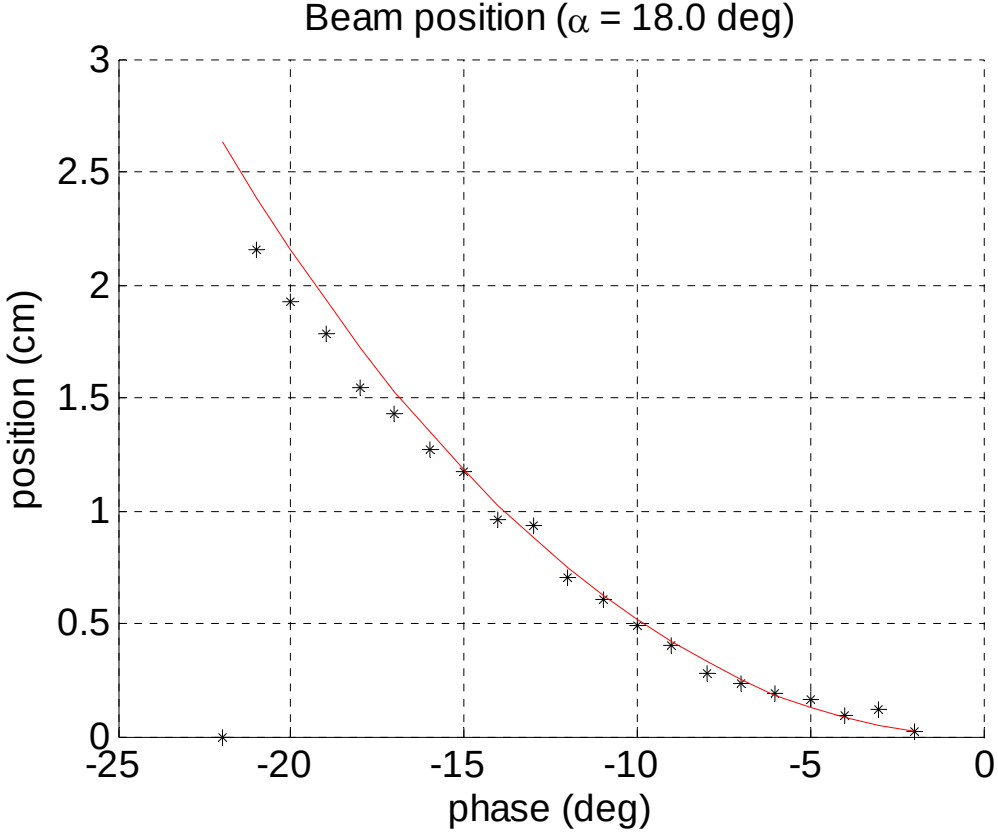


R16
T166
R3666

Scope in tunnel

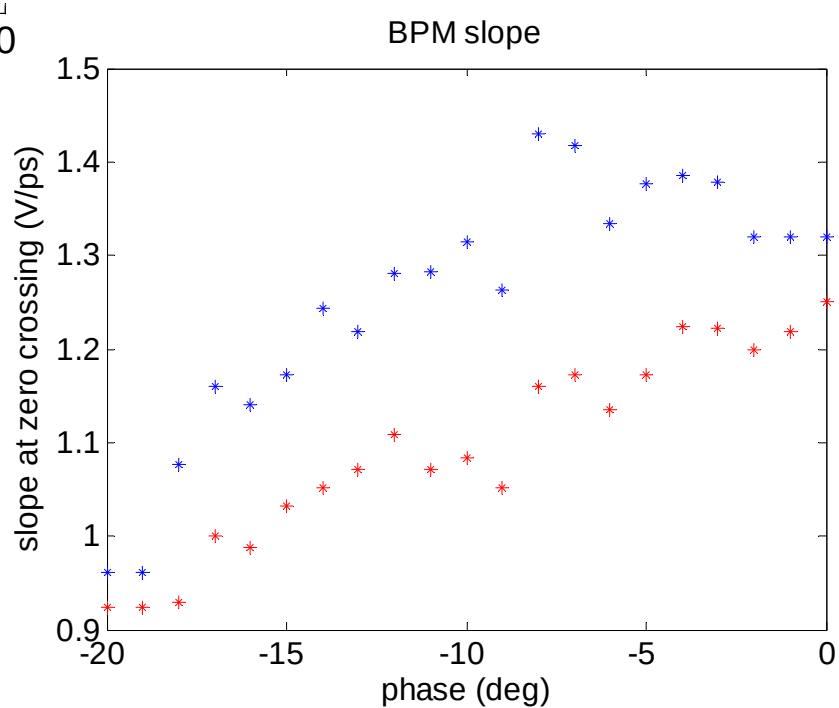
~ 150 um resolution
=> $5*10^{-4}$ resolution

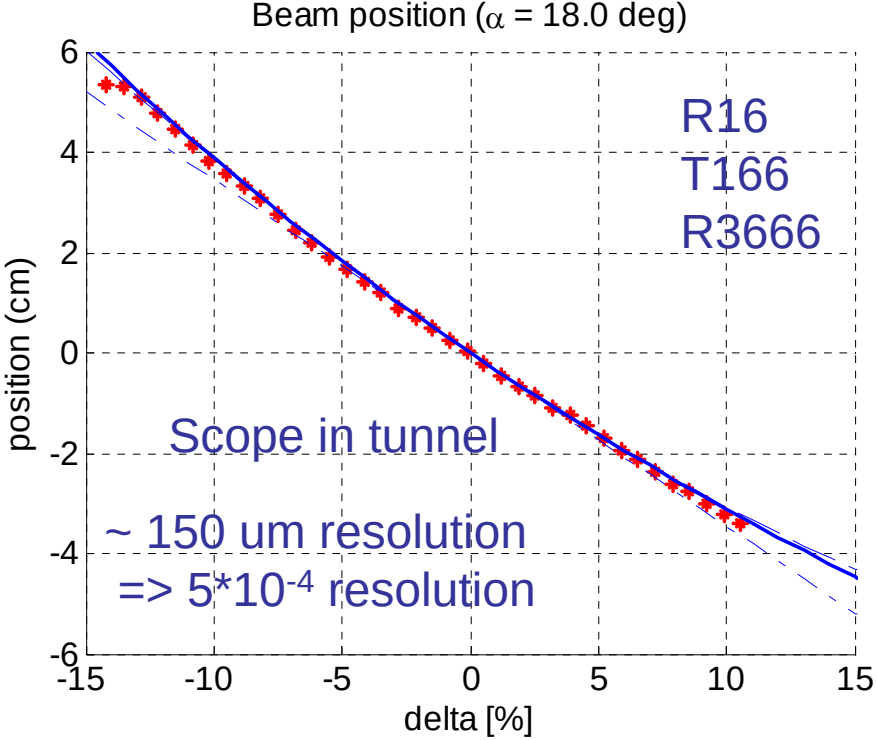


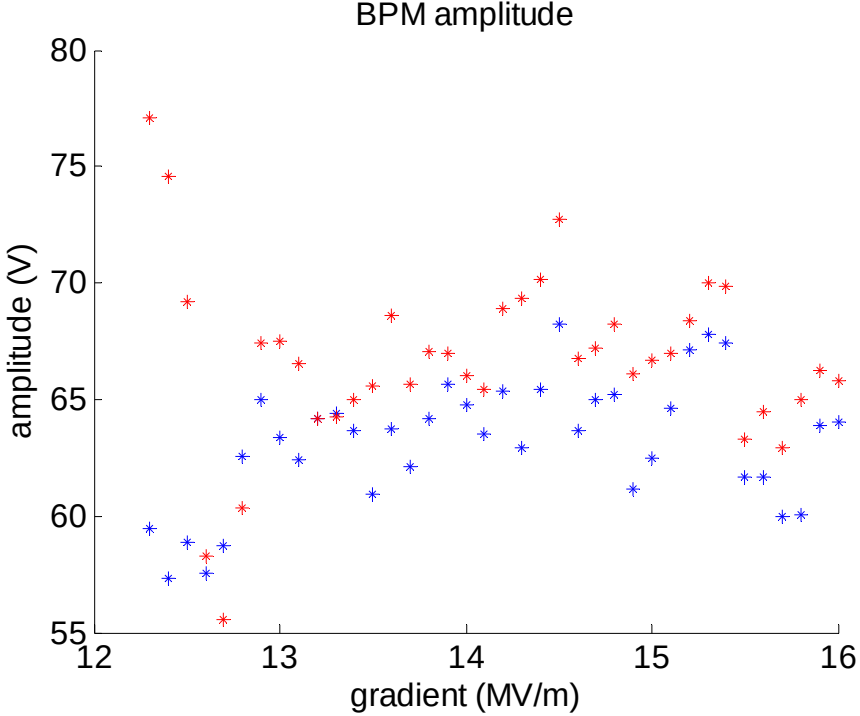


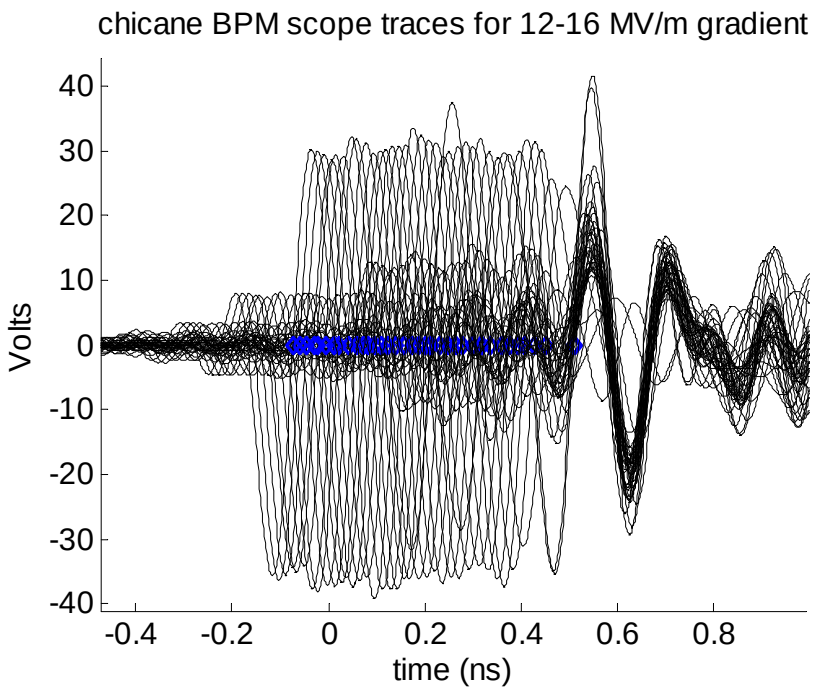
Dphase = $\frac{(-Etot+Egun+Eacc1*\cos(pi*phase/180))}{Etot}$

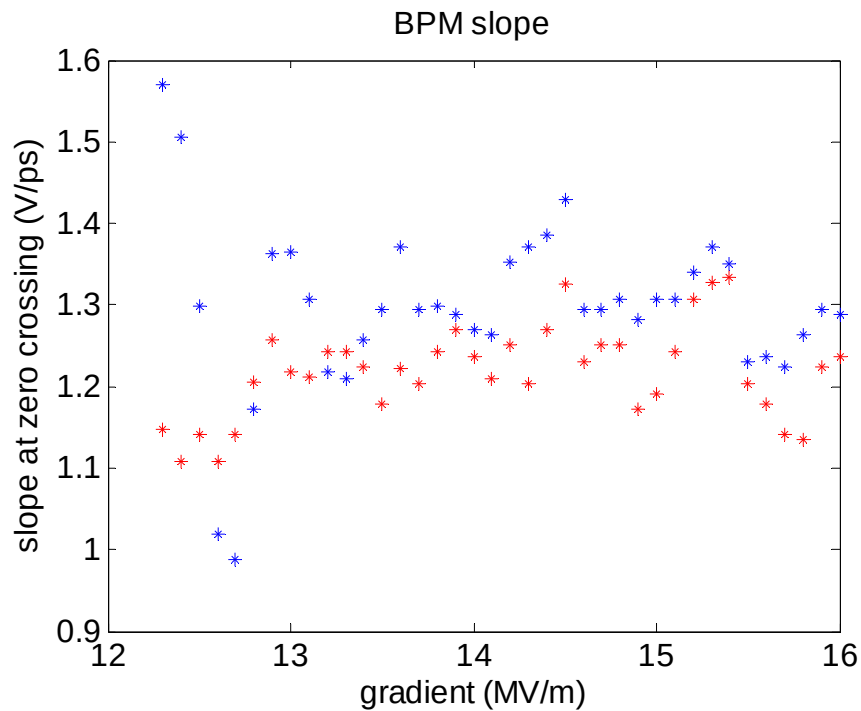
Scope in tunnel

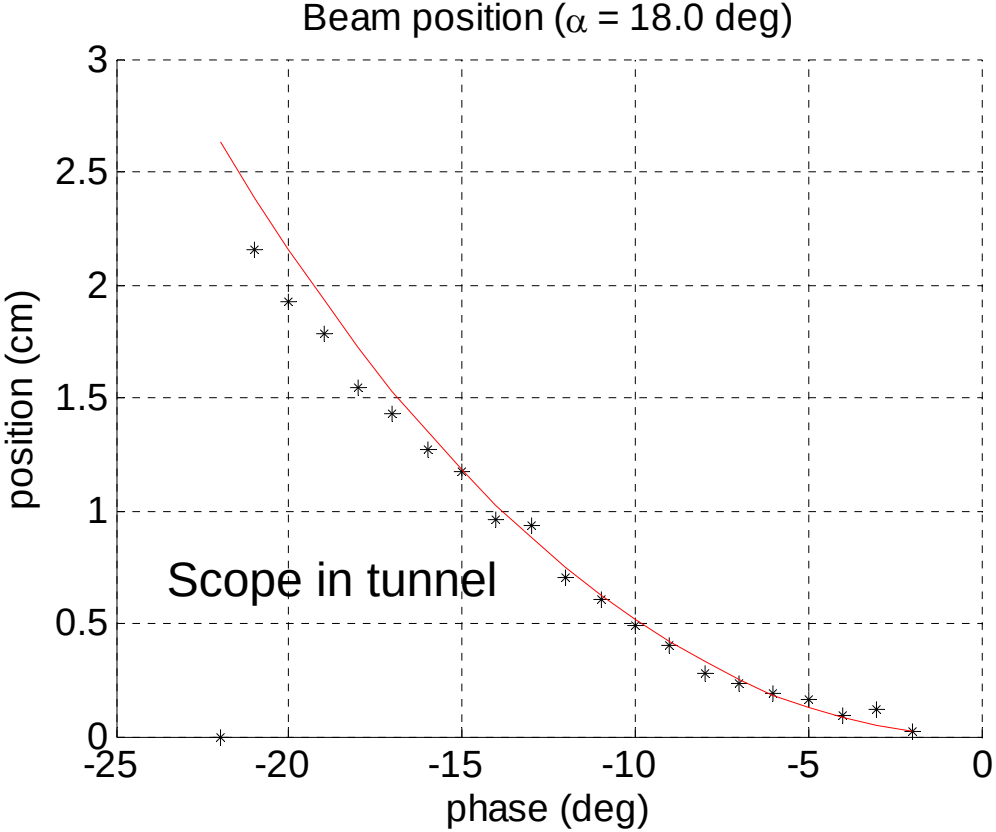


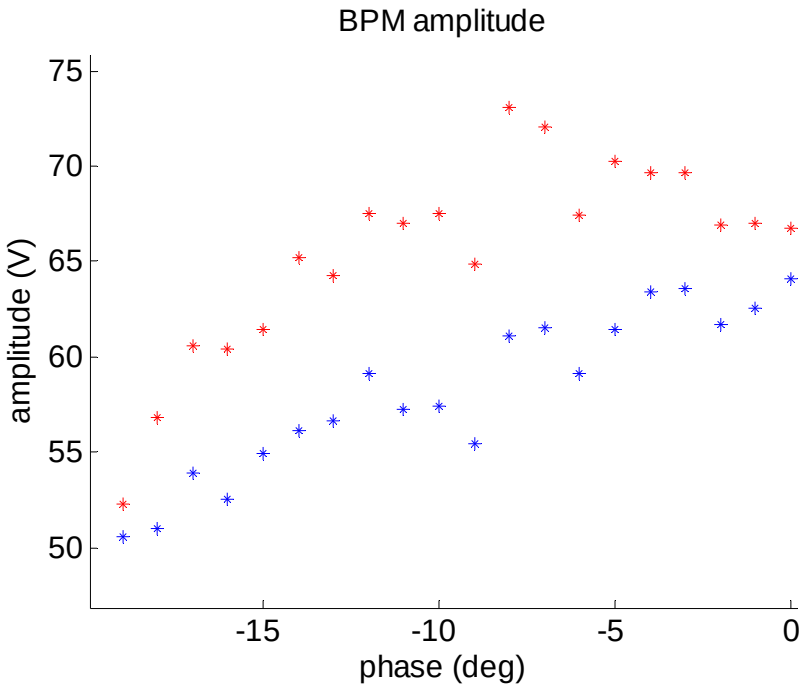

Beam position (α = 18.0 deg)
position (cm)
delta [%]
R16
T166
R3666
Scope in tunnel
~ 150 um resolution
=> 5*10-4 resolution

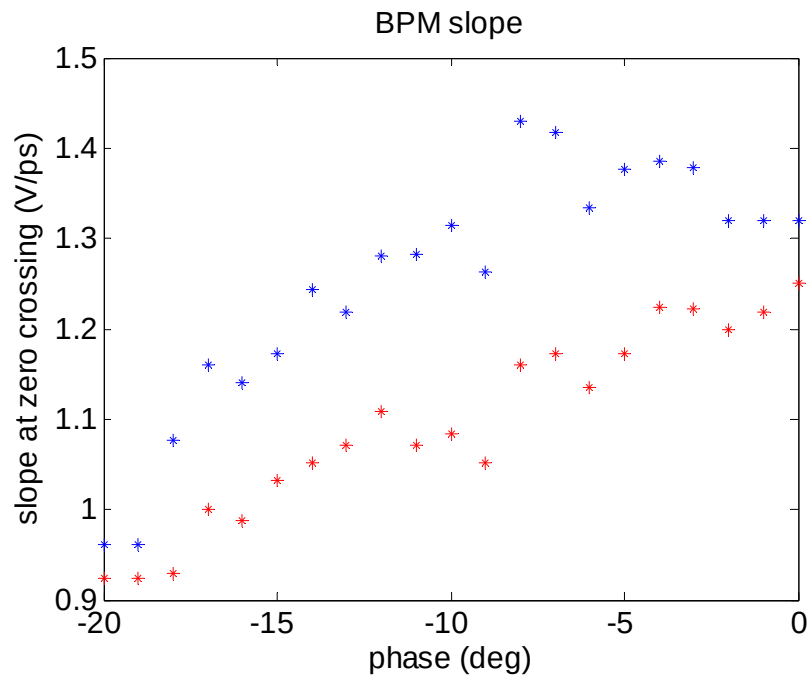

BPM amplitude
amplitude (V)
gradient (MV/m)

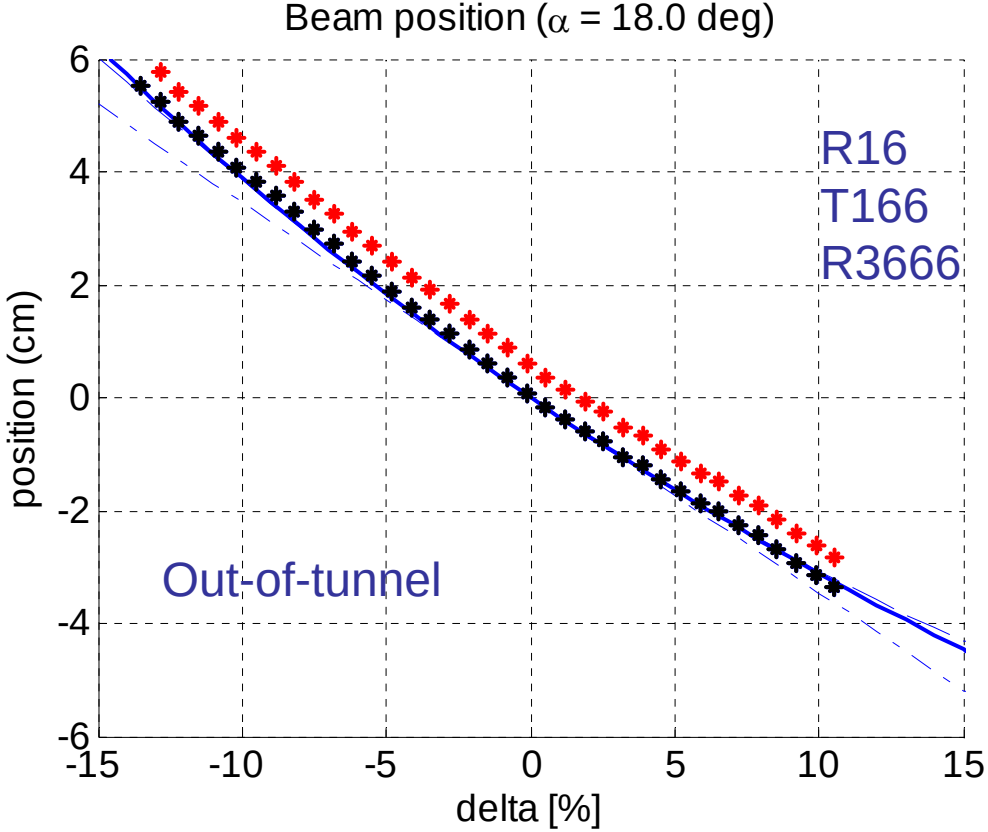

chicane BPM scope traces for 12-16 MV/m gradient
Volts
time (ns)

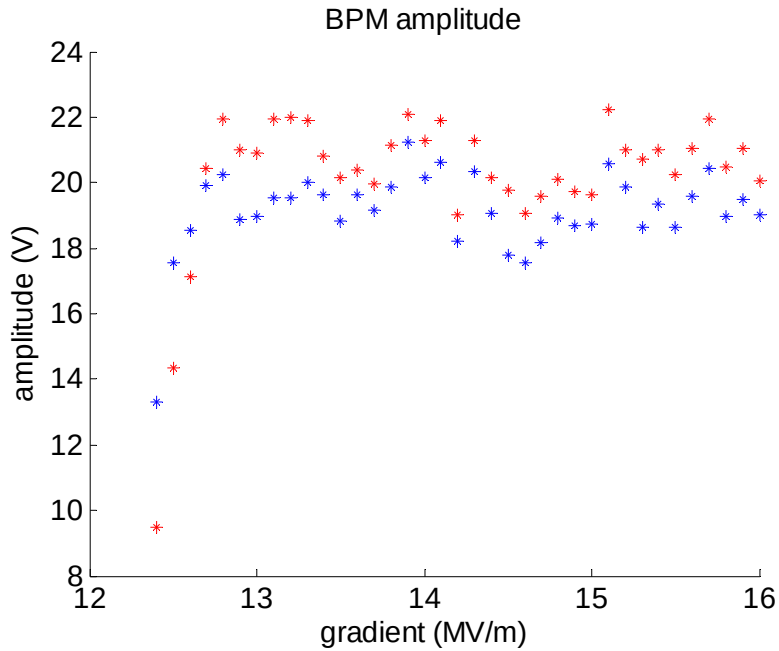

BPM slope
slope at zero crossing (V/ps)
gradient (MV/m)


Beam position (α = 18.0 deg)
position (cm)
phase (deg)
Scope in tunnel
3
2.5
2
1.5
1
0.5
0
-25
-20
-15
-10
-5
0

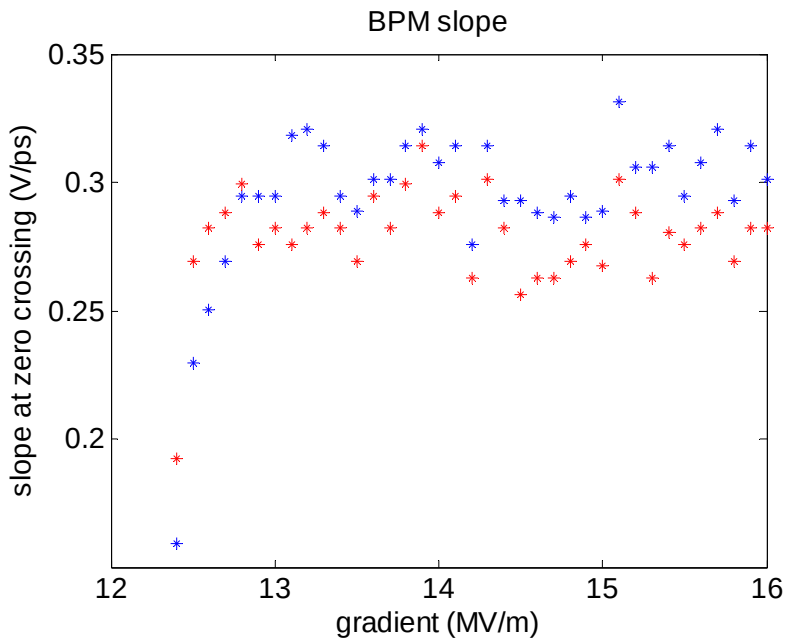

BPM amplitude
amplitude (V)
phase (deg)
75
70
65
60
55
50
-15
-10
-5
0

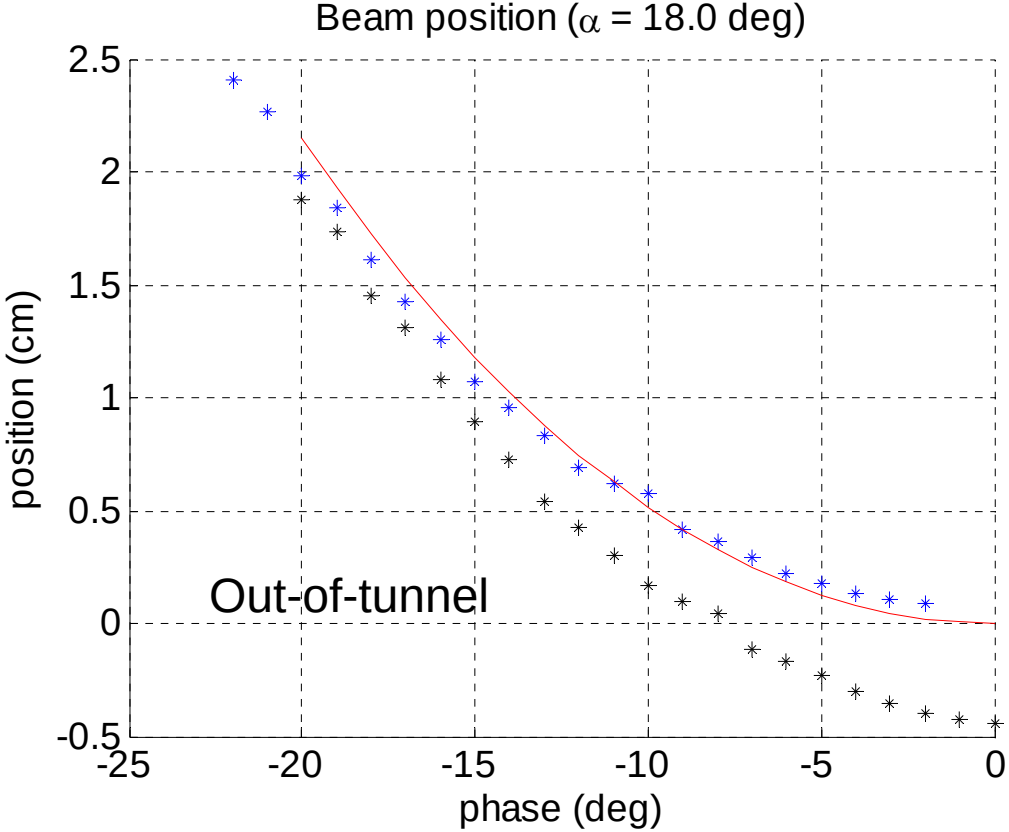

BPM slope
slope at zero crossing (V/ps)
phase (deg)
1.5
1.4
1.3
1.2
1.1
1
0.9
-20
-15
-10
-5
0

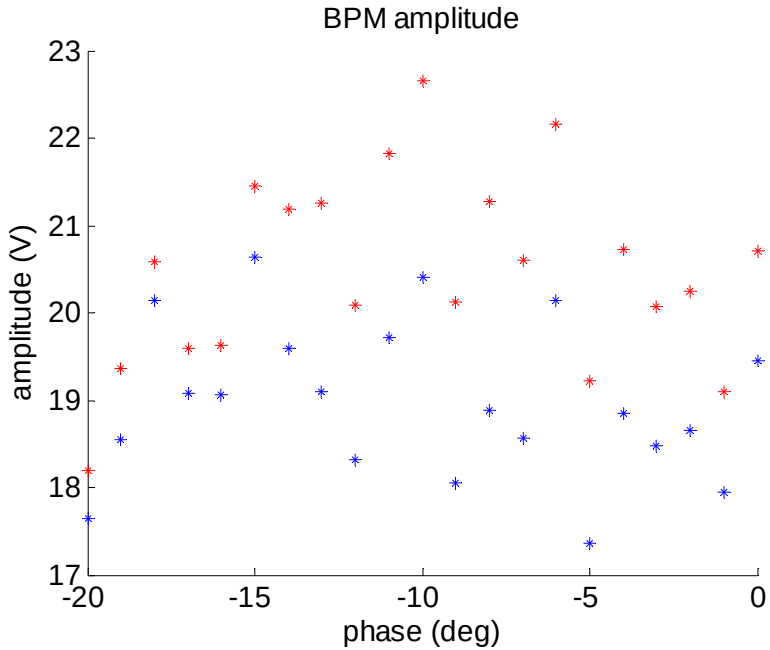




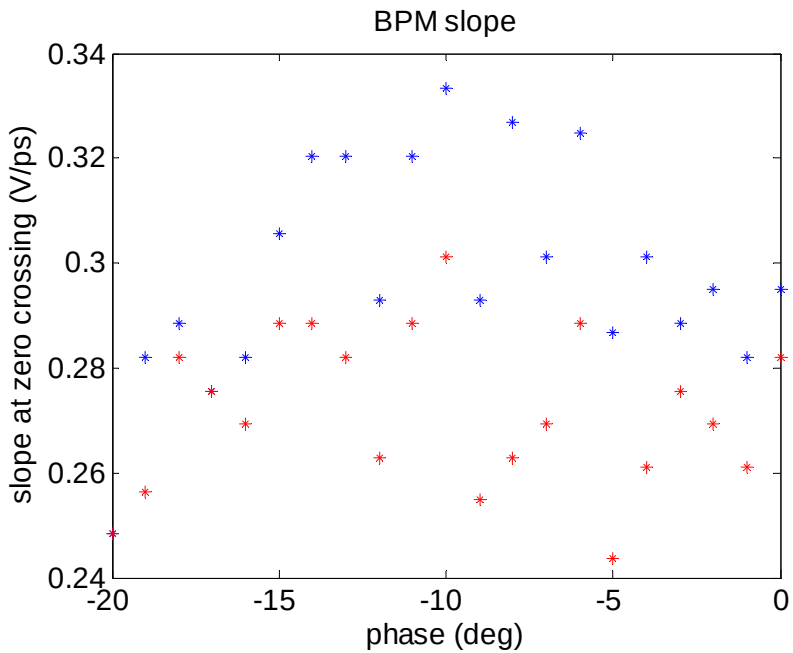
Cable length correction: Red->Black

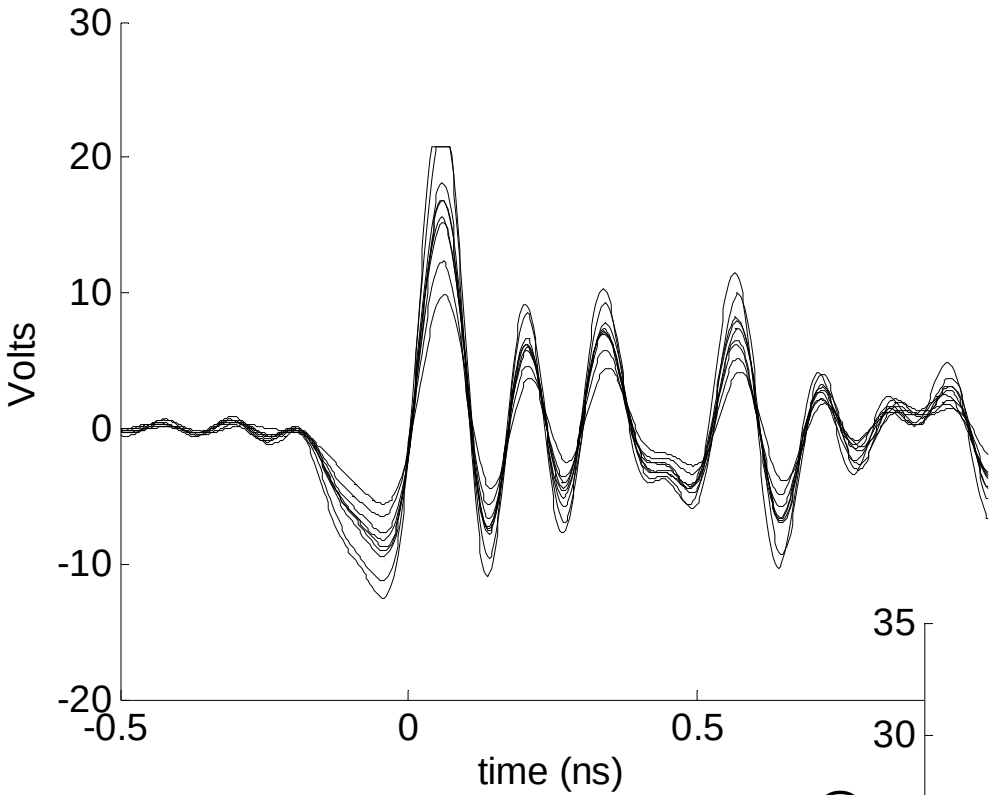






Cable length correction: Black->Blue





-Looked at synch light monitor

-Scanned in y

-Stopped when beam appeared to be approaching beam pipe