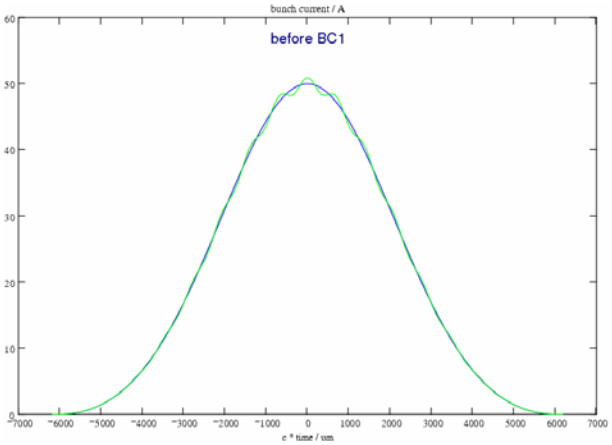
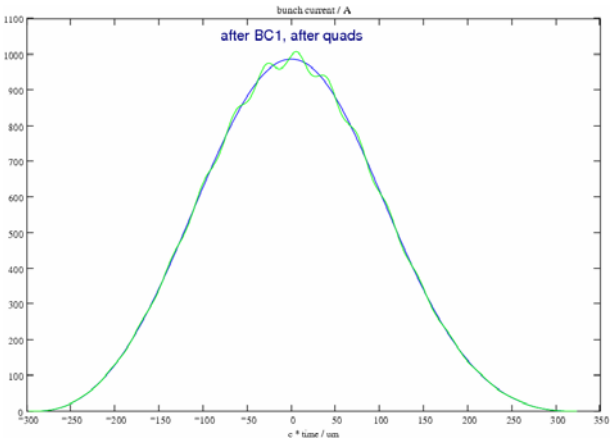
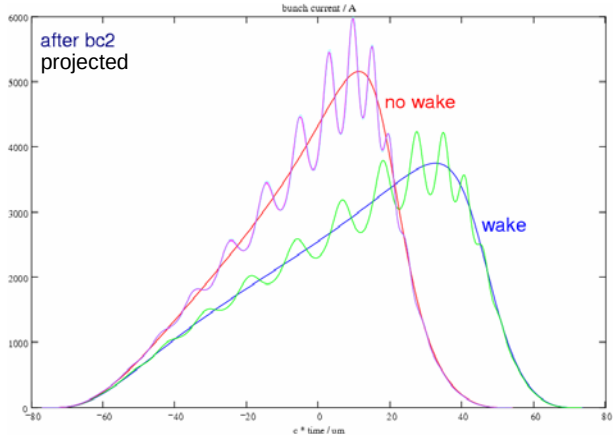
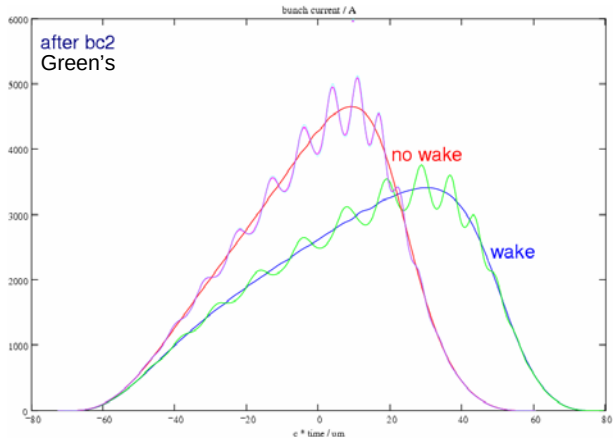
μ-bunch stability





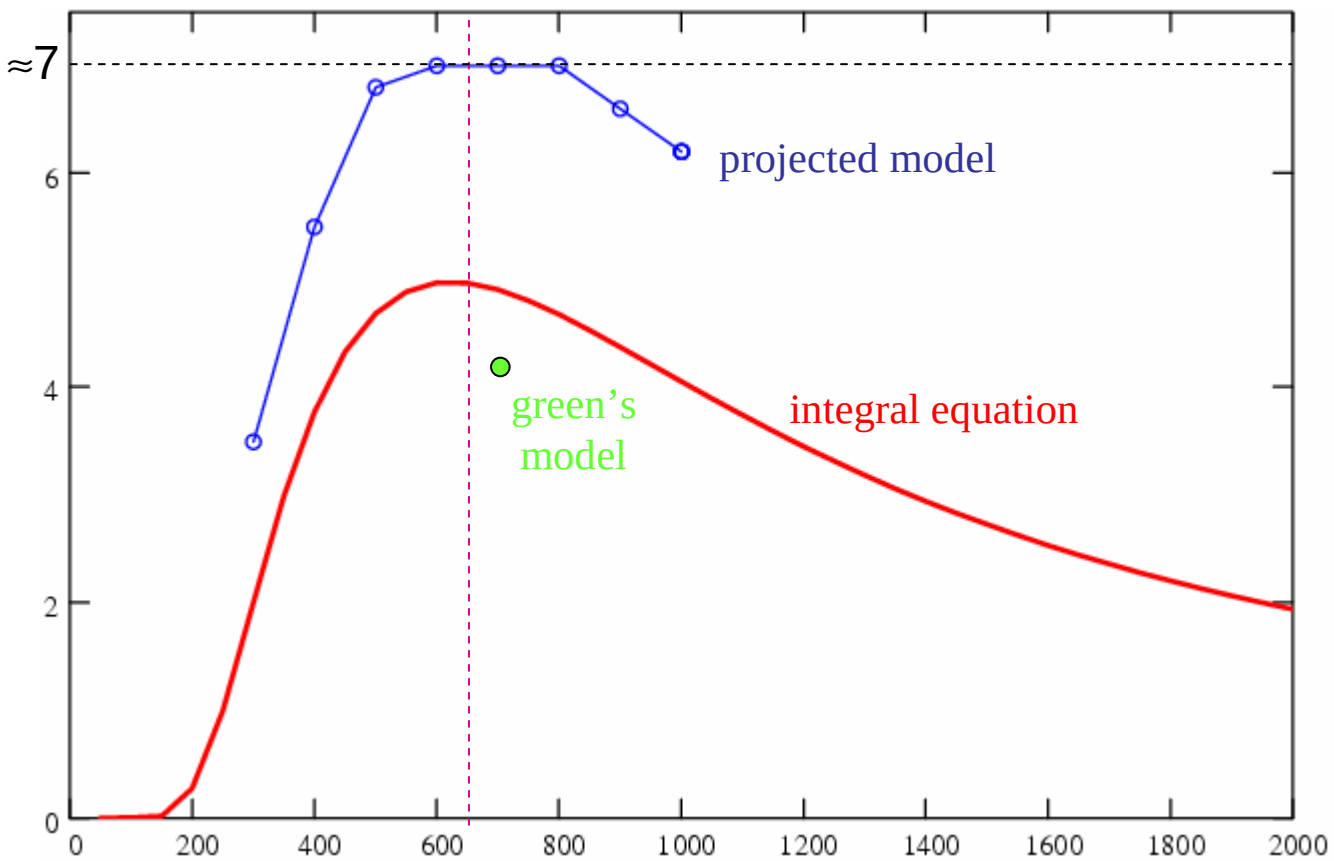




old setup:
(511 MeV)

D1	0.761 m	
Q1	0.100 m	k = 4.5340
D2	0.300 m	
Q2	0.100 m	k = –6.8347
D3	0.300 m	
Q3	0.100 m	k = 2.5442
D4	20.100 m	
Q4	0.050 m	k = –3.7623
D5	0.600 m	
Q5	0.100 m	k = 5.2225
D6	0.600 m	
Q6	0.100 m	k = –6.9480
D7	0.200 m	

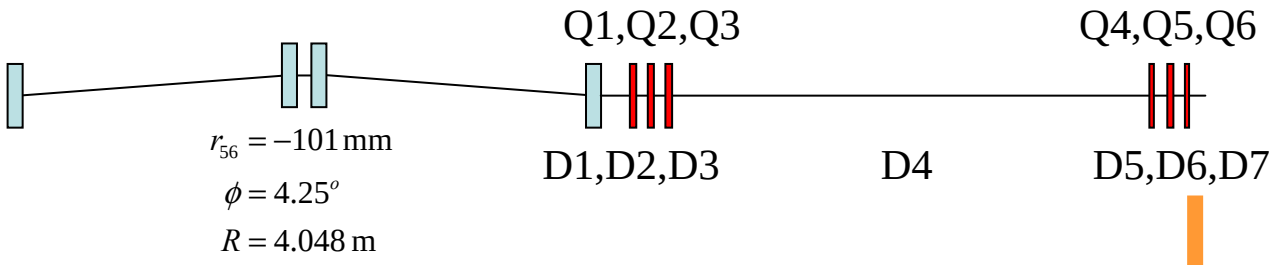
old gain curve (see s2e Nov. 2004)



integral equation not justified: overtaking length in BC1 long compared to magnets !

simplified new setup:

1st CSRtrack run

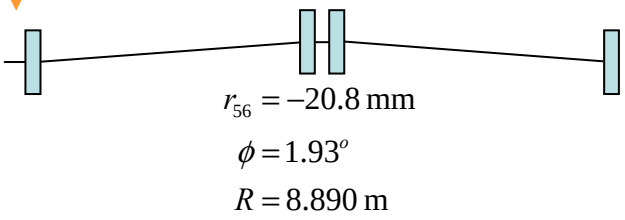


511 MeV

particles scaled
to 2.5 GeV + cavity wakes

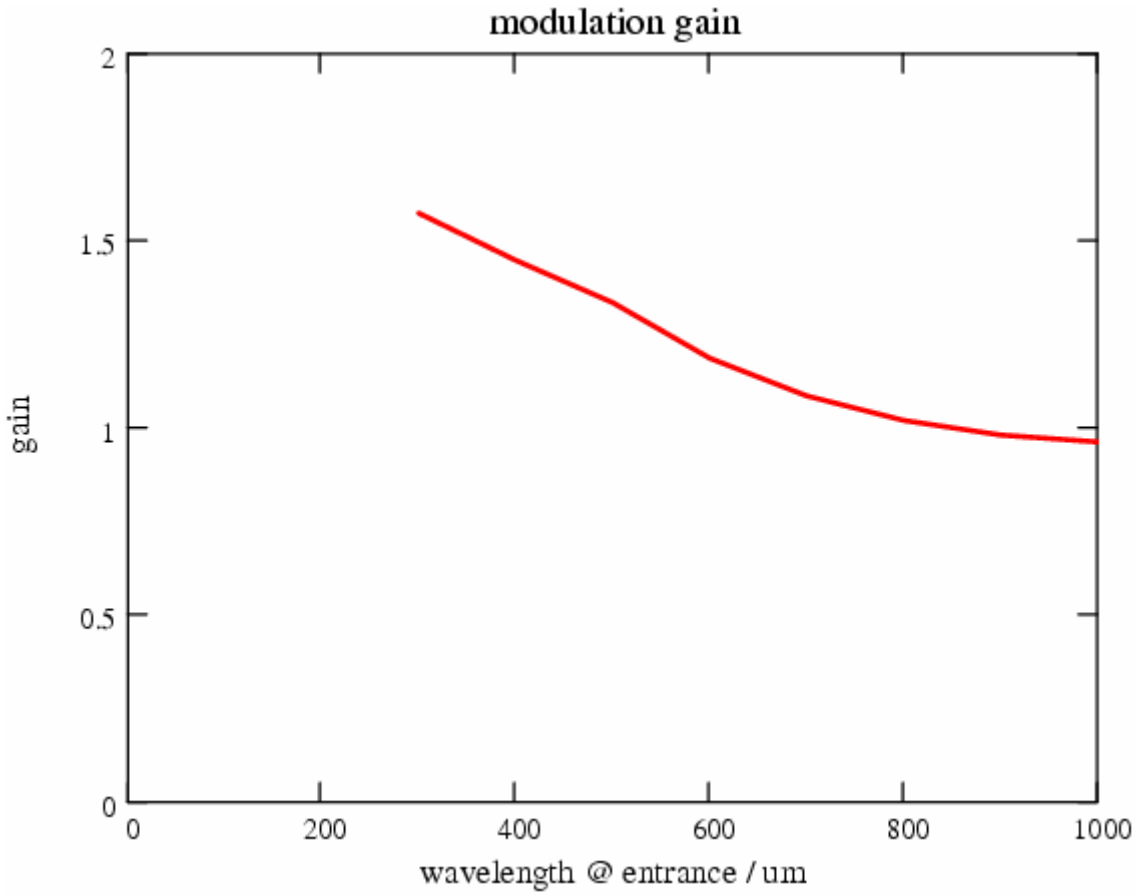
(12 TTF modules
+3.6 m LOLA
+ est. step transition)

2.5 GeV



2nd CSRtrack run

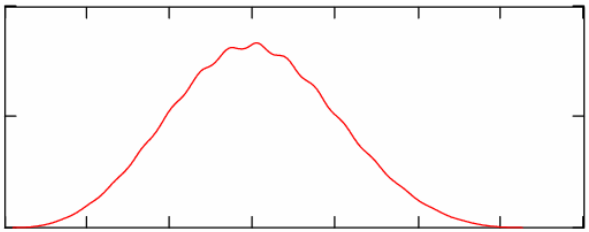
Gain after BC1



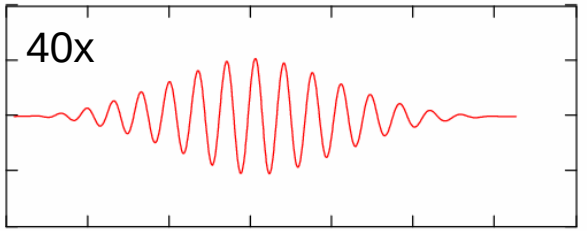
cavity wakes:

(e.g. λ = 700 μm, 2% mod.)

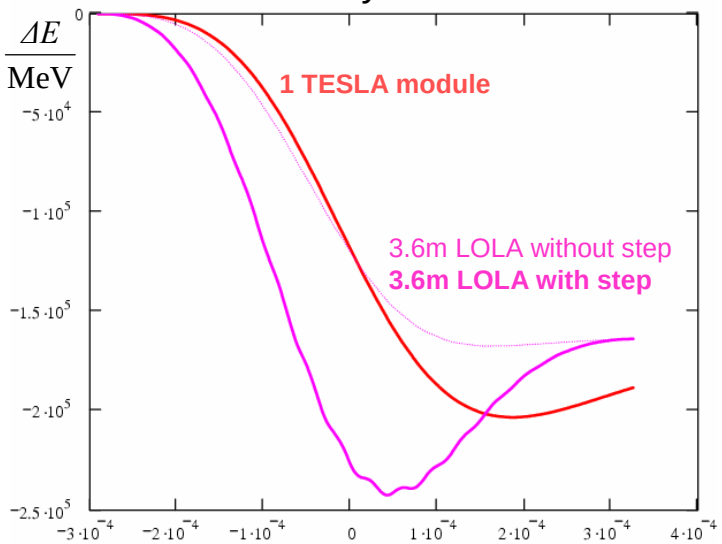
full charge density



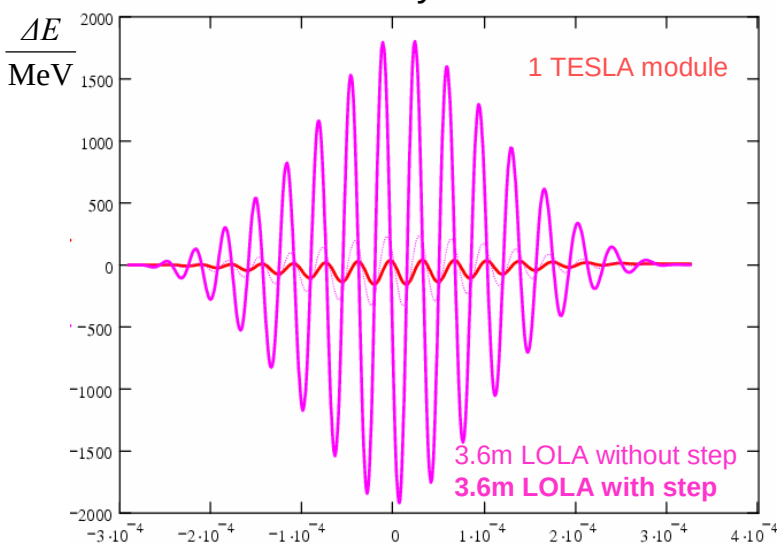
modulated part =full+modulated - full



cavity wakes



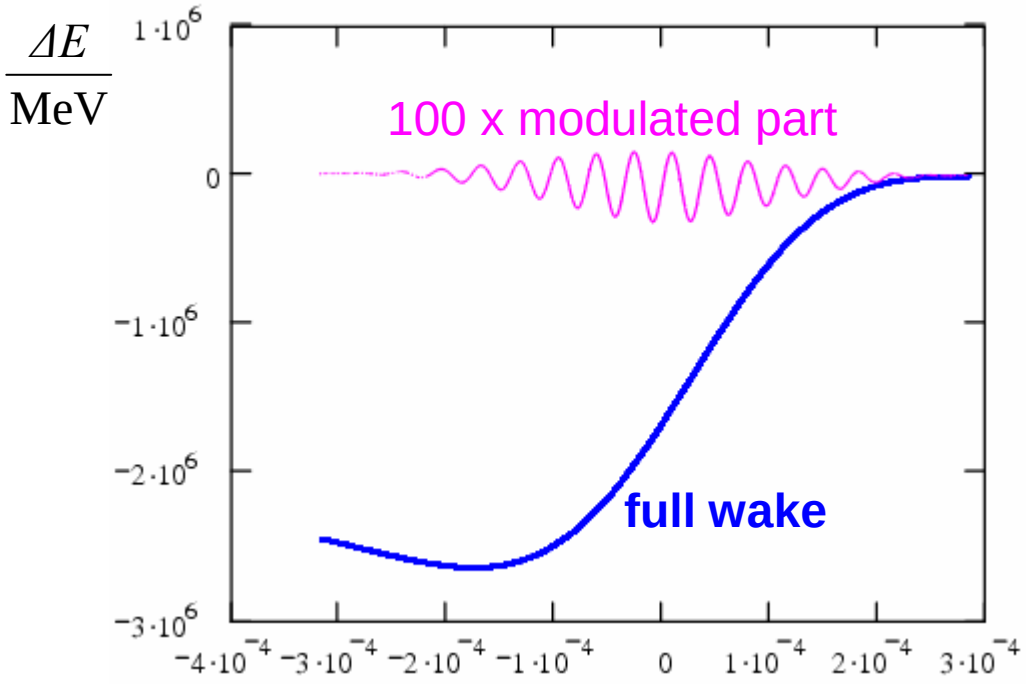
cavity wakes



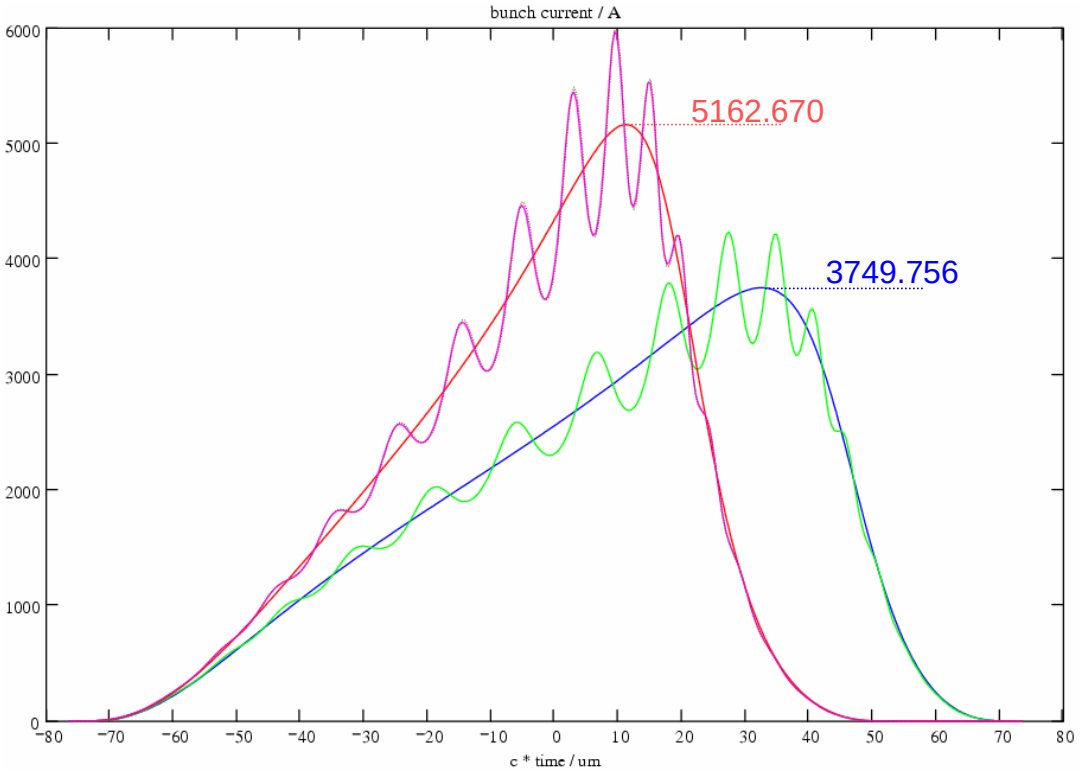
cavity wakes:

12 TTF modules
+3.6 m LOLA + est. step transition

(e.g. λ = 700 µm, 2% mod.)



λ = 700 μm, projected method



case = "700um"

no wake

max(i4 − i3) = 843.354

min(i4 − i3) = −713.24

gain = 8.2

wake

max(i2 − i1) = 574.55

min(i2 − i1) = −475.584

gain = 7.7

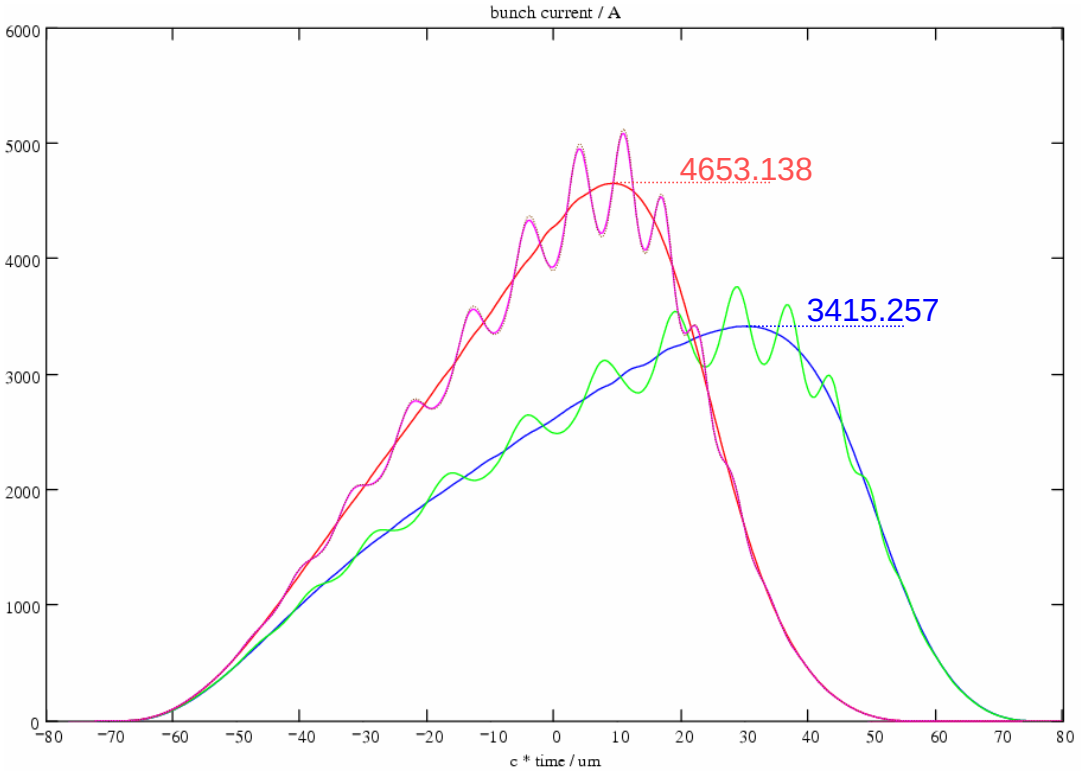
mod wake

max(i5 − i3) = 861.505

min(i5 − i3) = −739.81

gain = 8.3

λ = 700 μm, Green's method



case = "700um_gm"

no wake

max(i4 − i3) = 450.137

min(i4 − i3) = −415.105

gain = 4.8

wake

max(i2 − i1) = 343.893

min(i2 − i1) = −309.253

gain = 5.0

mod wake

max(i5 − i3) = 491.041

min(i5 − i3) = −449.638

gain = 5.3

AC part and Gain
after BC2 (2.5GeV)