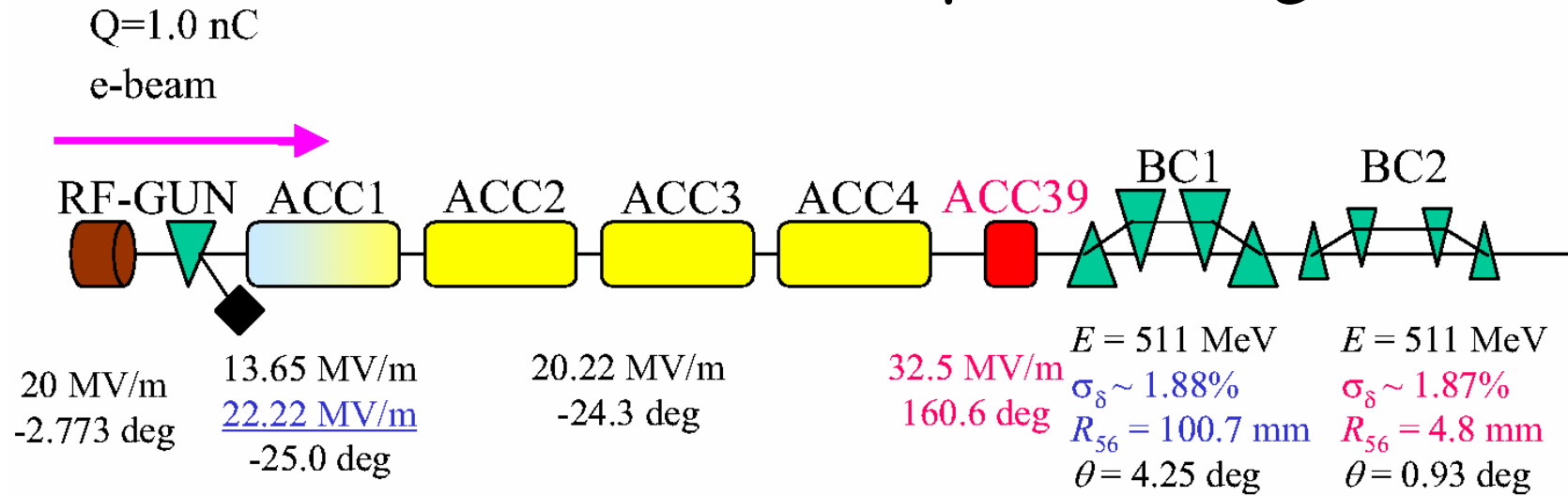


# XFEL double BC, $\mu$ -bunching

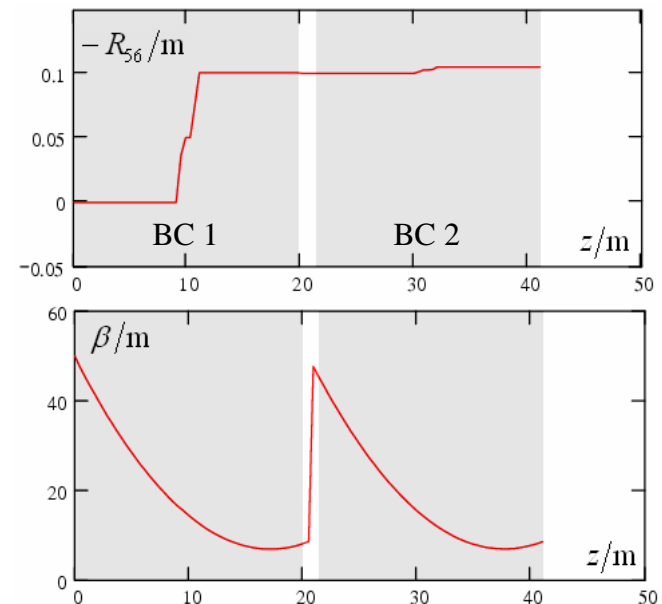


compression:  $C = 100 = 20 \times 5$

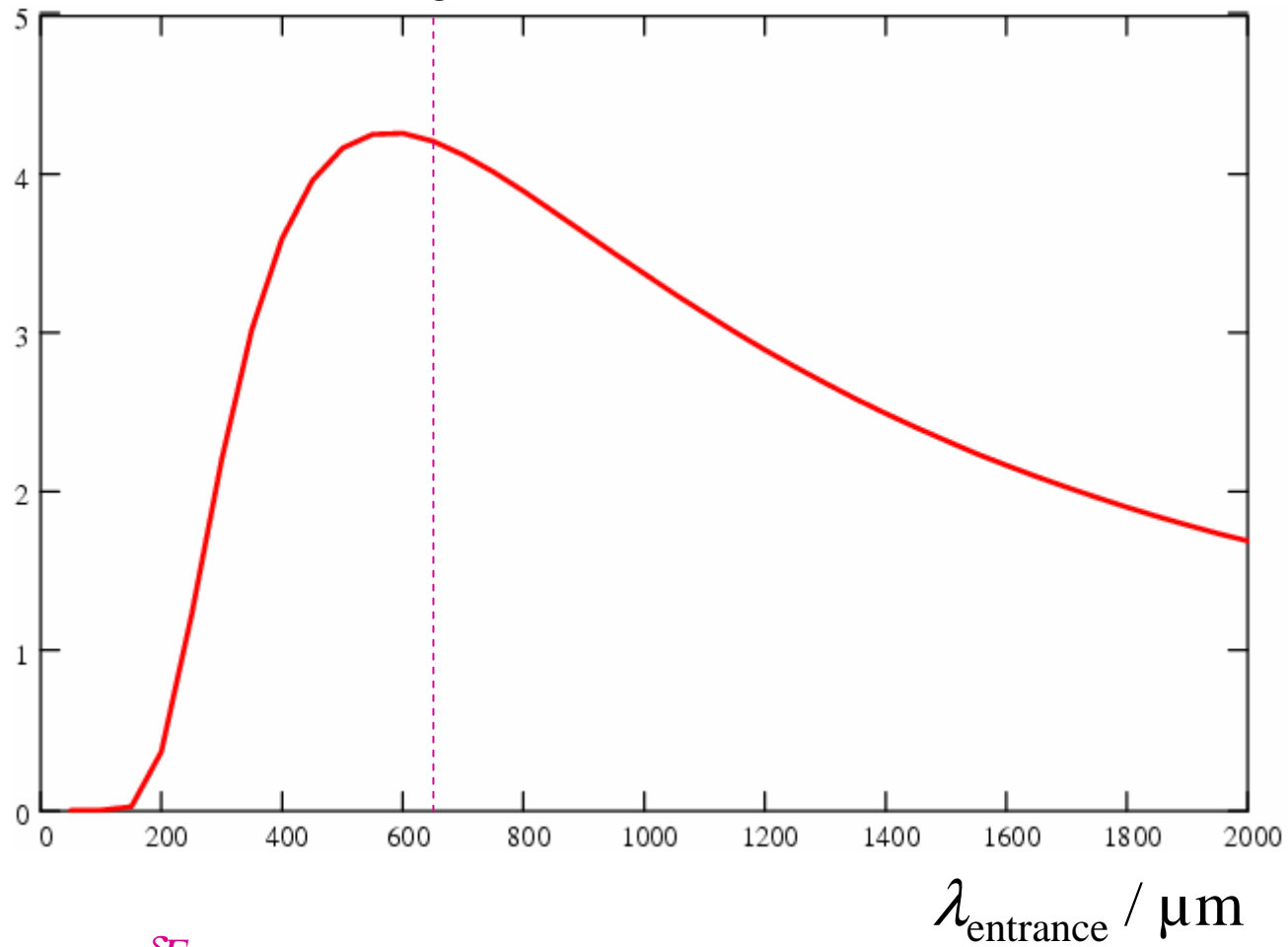
current: 50 A  $\rightarrow$  5 kA

emittance:  $10^{-9}$  m

uncorrelated energy spread:  $\delta e = 5$  keV

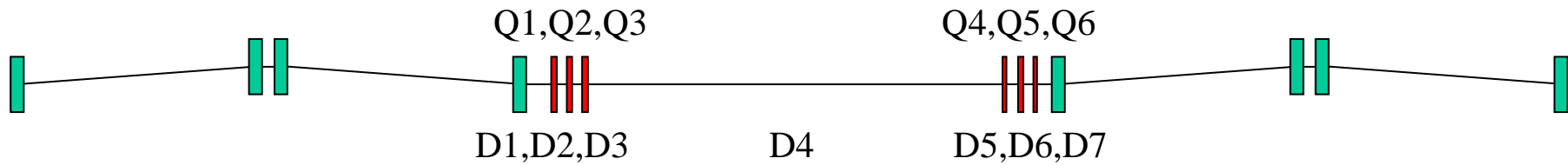


gain in double bc

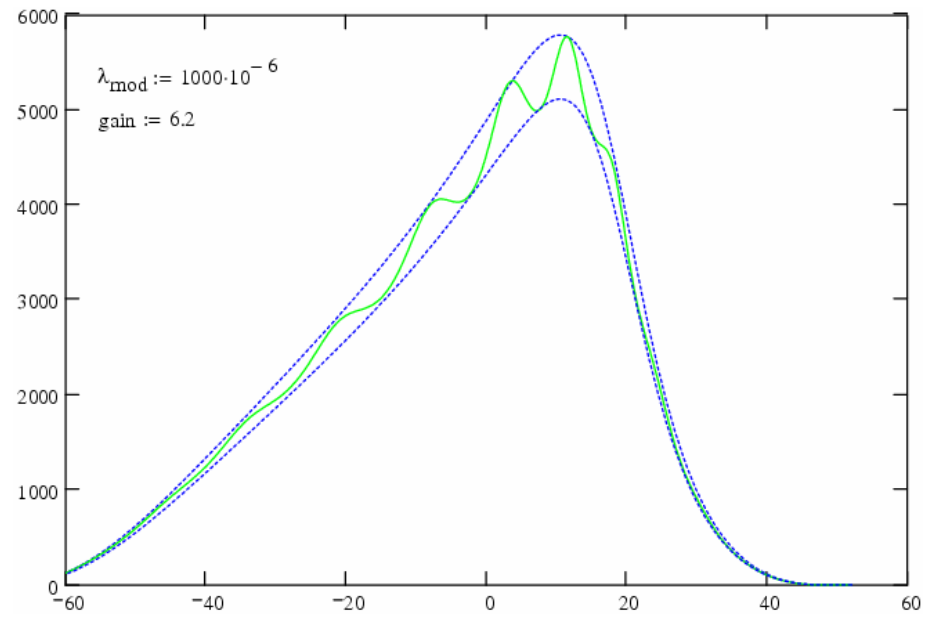
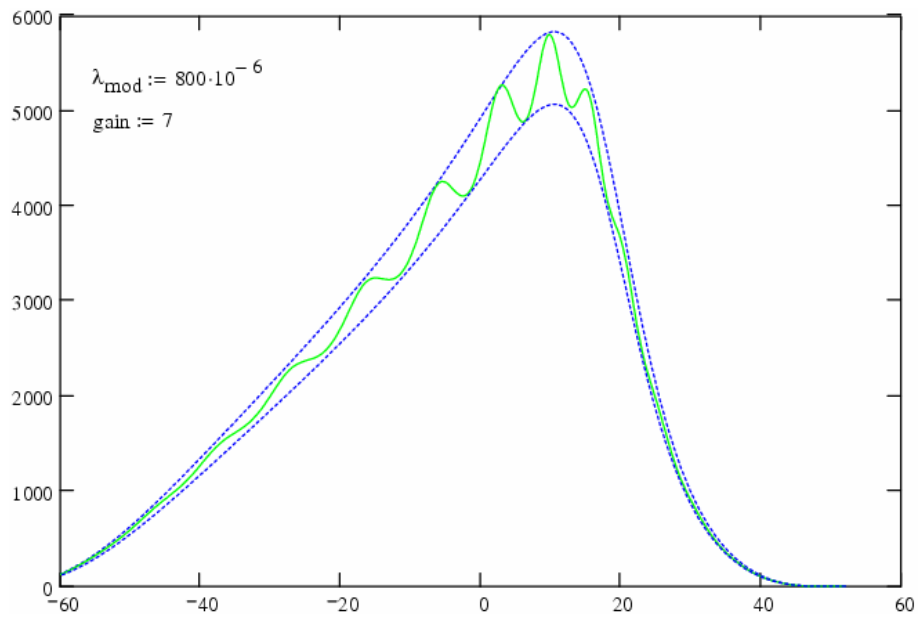
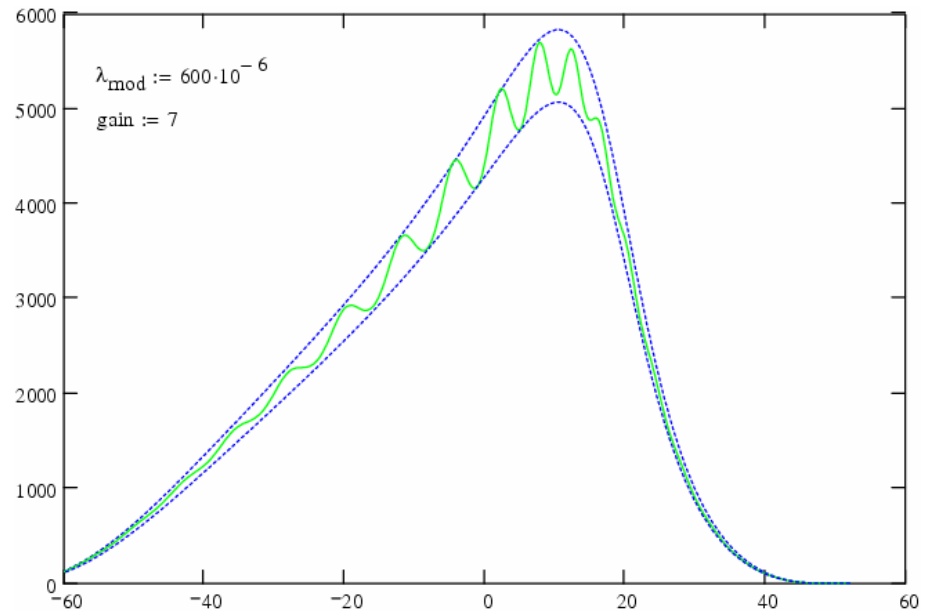
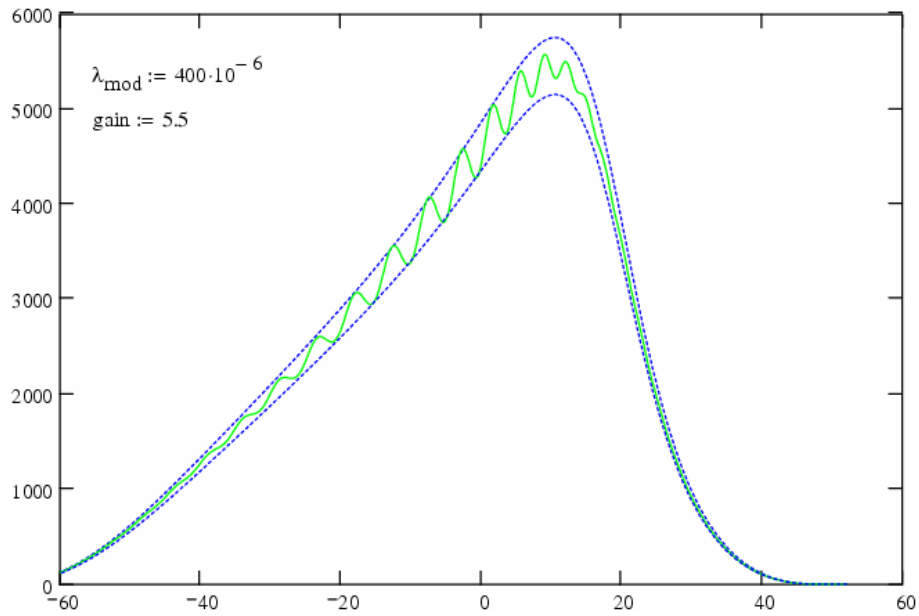


$$\frac{\delta E}{E_0} \cdot R_{56} \cdot C \cdot 2\pi = 650 \mu\text{m}$$

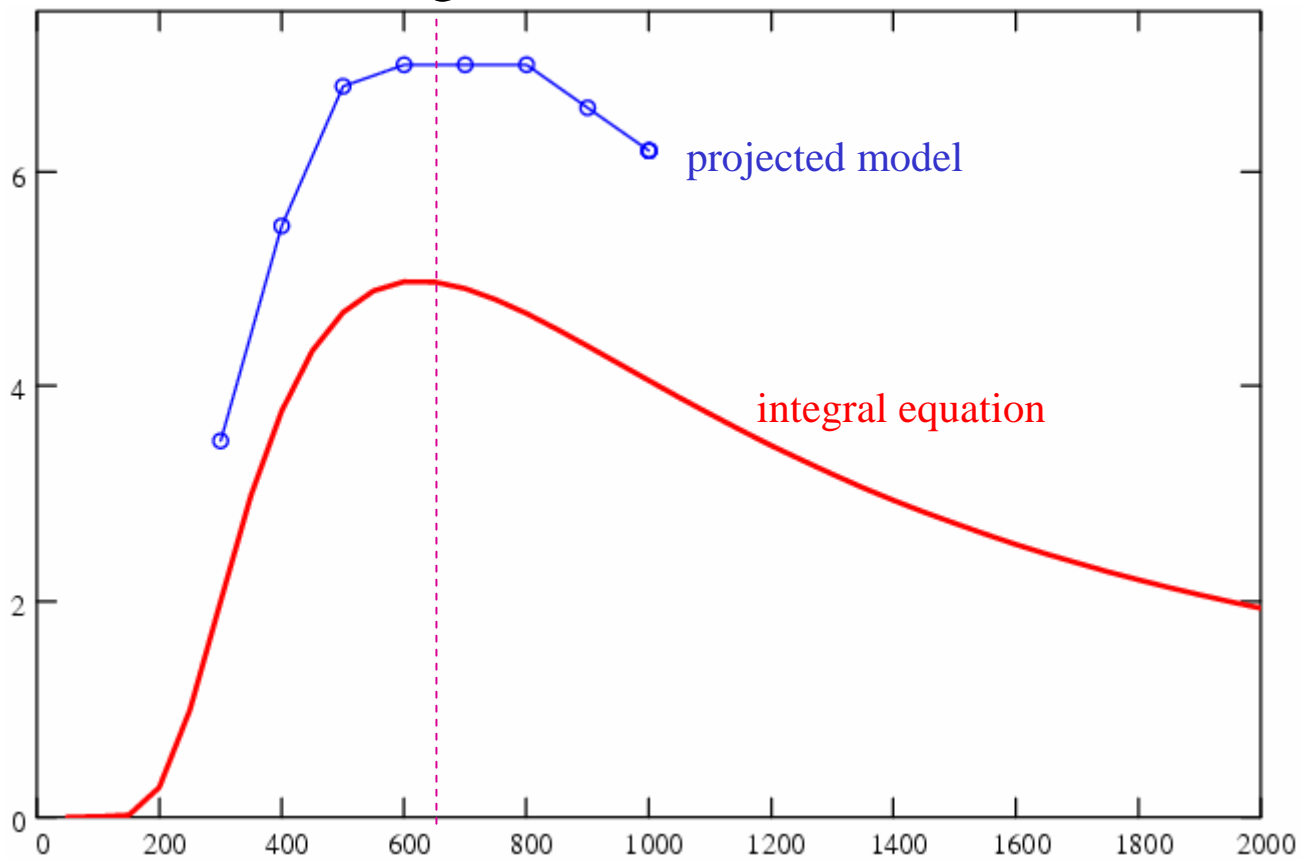
## optics between BC1 and BC2



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	



# gain in double bc

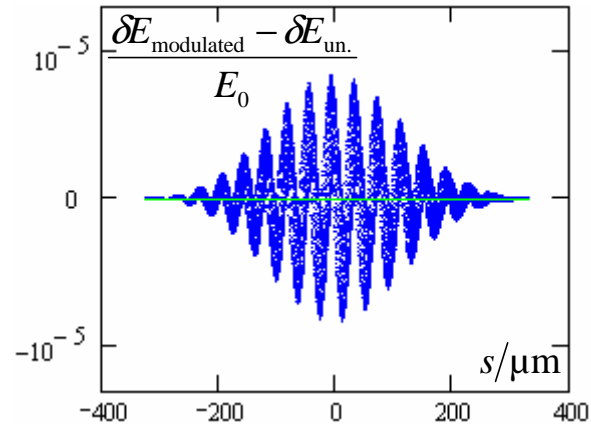


$$\frac{\delta E}{E_0} \cdot R_{56} \cdot C \cdot 2\pi = 650 \mu\text{m}$$

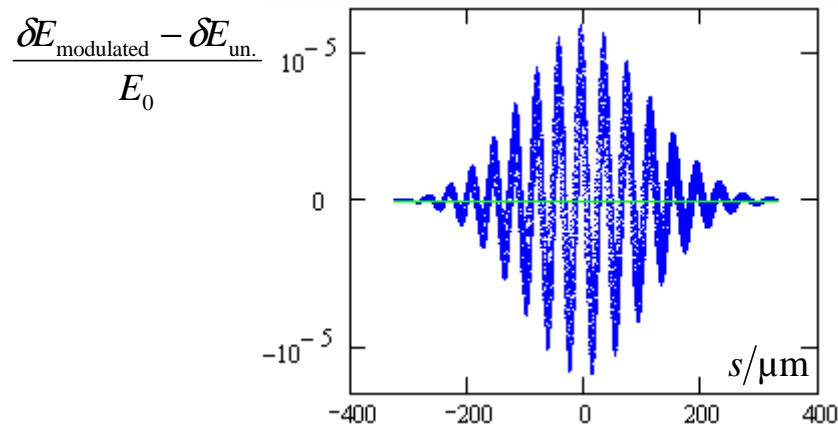
$\lambda_{\text{entrance}} / \mu\text{m}$

(integral equation now with correct optic)

energy modulation after last magnet of BC1



energy modulation after Q3



CSR in drift after BC1  
not negligible !

