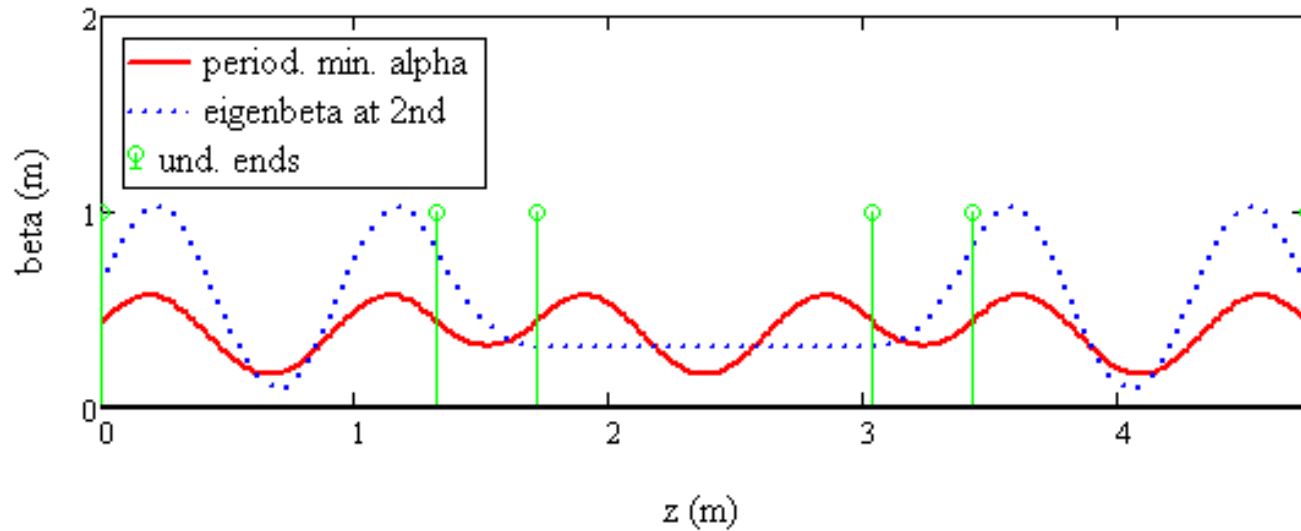


# Analyzed SABINA working points

working point	short $\lambda$	long $\lambda$	lower K
beam energy	100 MeV	30 MeV	45 MeV
res. wavelength	10 $\mu\text{m}$	100 $\mu\text{m}$	30 $\mu\text{m}$
K parameter	3.595	3.396	2.731

Normalized emittance:  $\varepsilon_x = \varepsilon_y = 2 \text{ mm} * \text{mrad}$ , in every following RMS transverse size plot

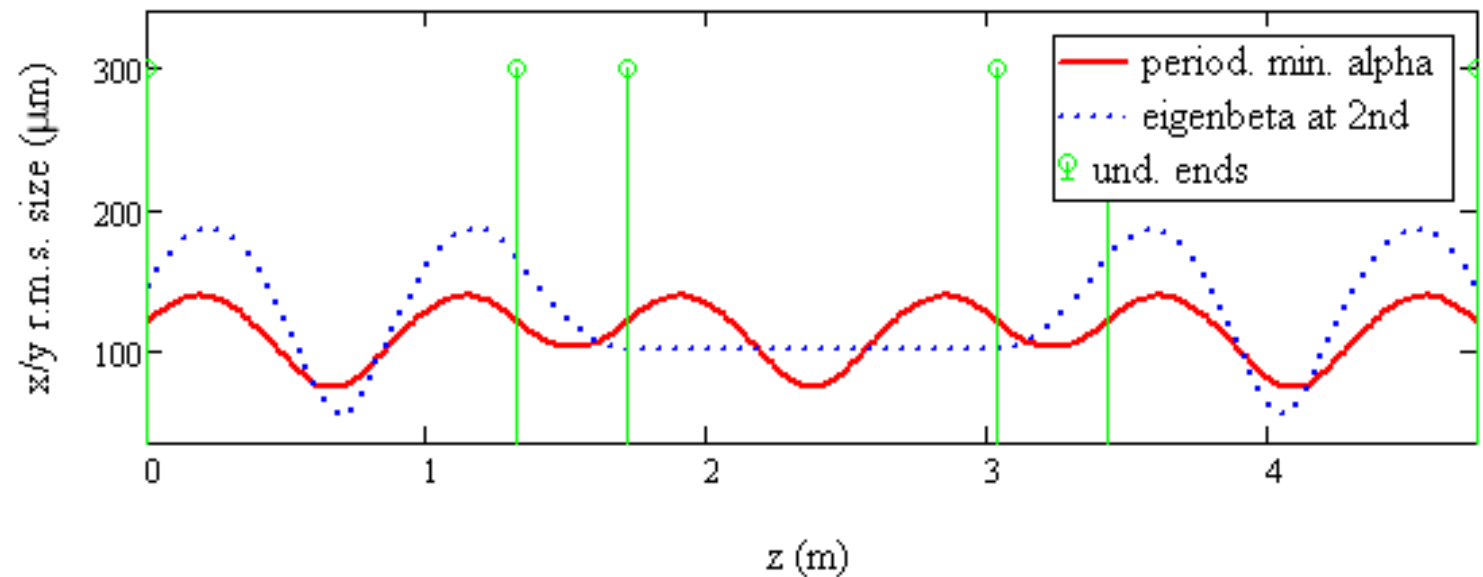
# 30 MeV working point – 100 $\mu\text{m}$



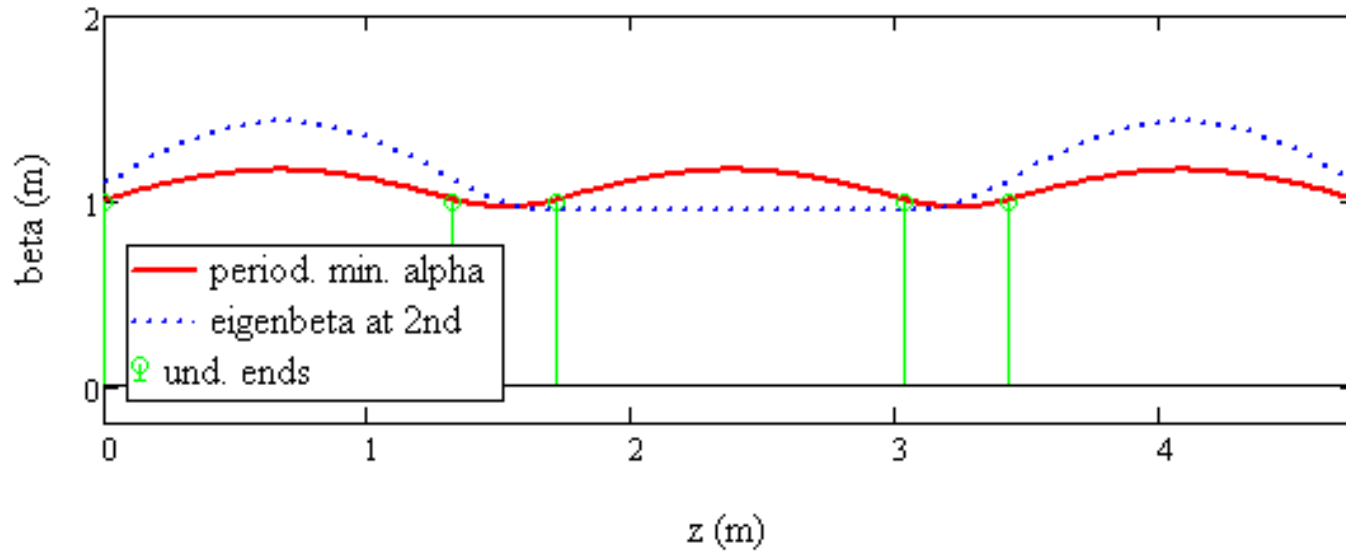
$$\gamma := \frac{E}{m_0 \cdot c^2} = 58.709$$

$$\lambda_0 := 100 \cdot \mu\text{m}$$

$$K = 3.396$$



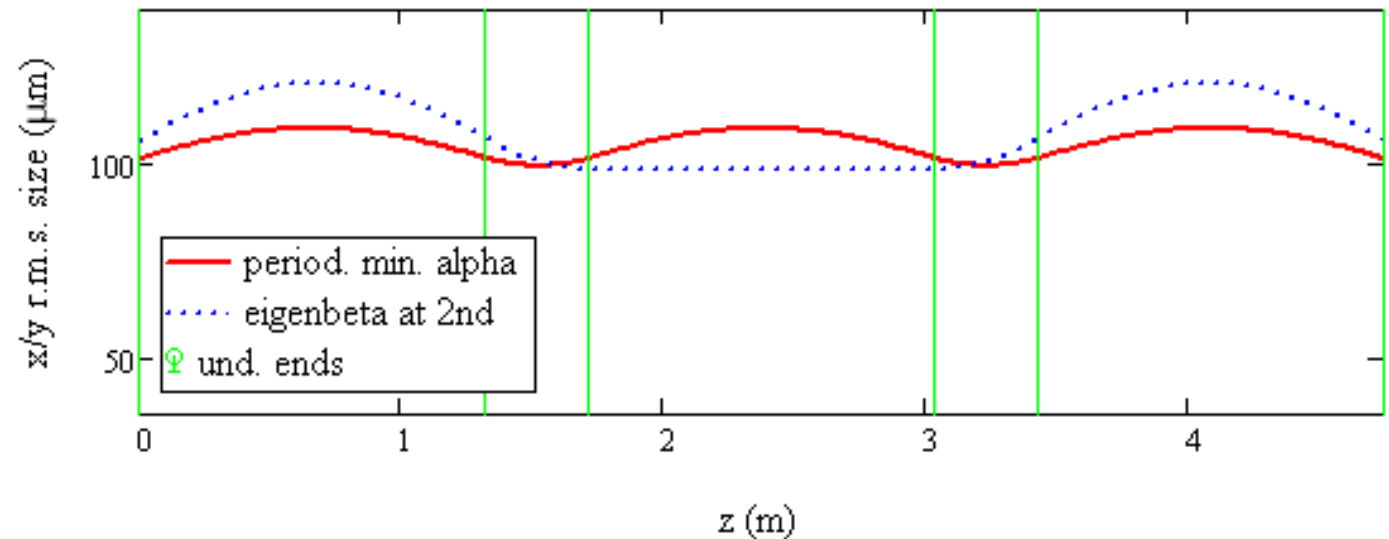
# 100 MeV working point – 10 $\mu\text{m}$



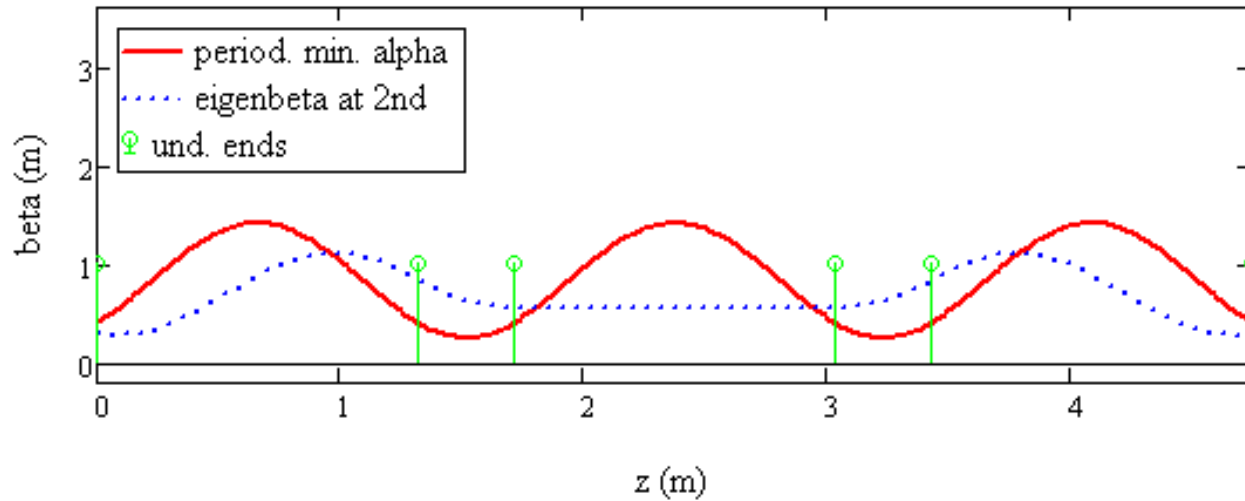
$$\gamma := \frac{E}{m_0 \cdot c^2} = 195.695$$

$$\lambda_0 := 10 \cdot \mu\text{m}$$

$$K = 3.595$$



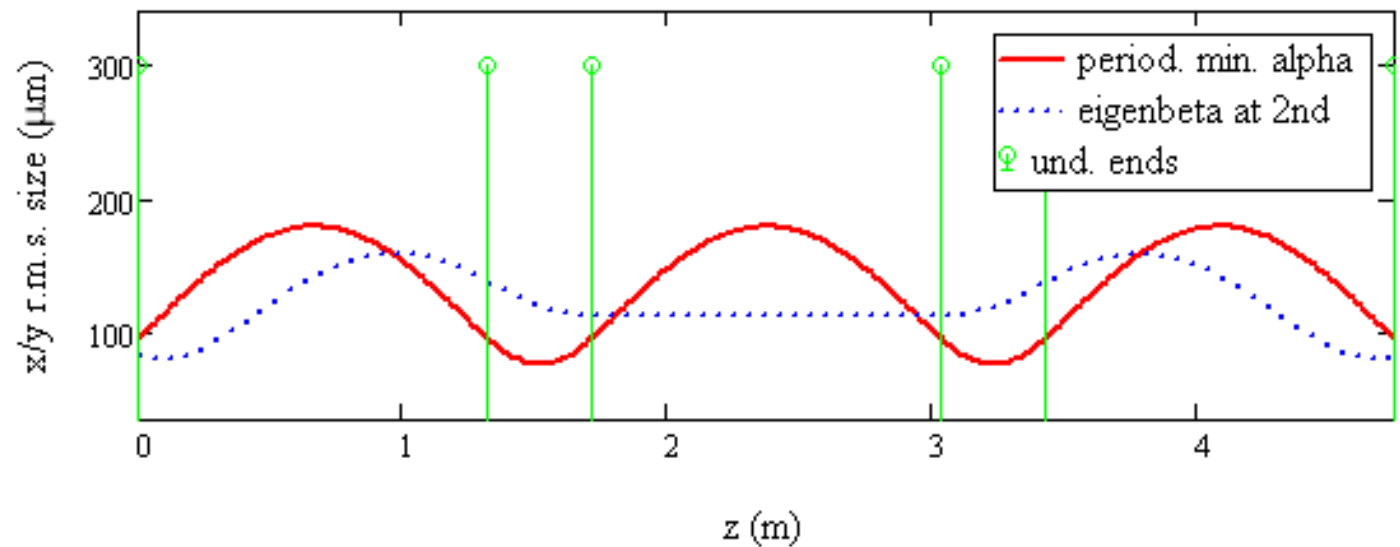
# 45 MeV working point – 30 $\mu\text{m}$



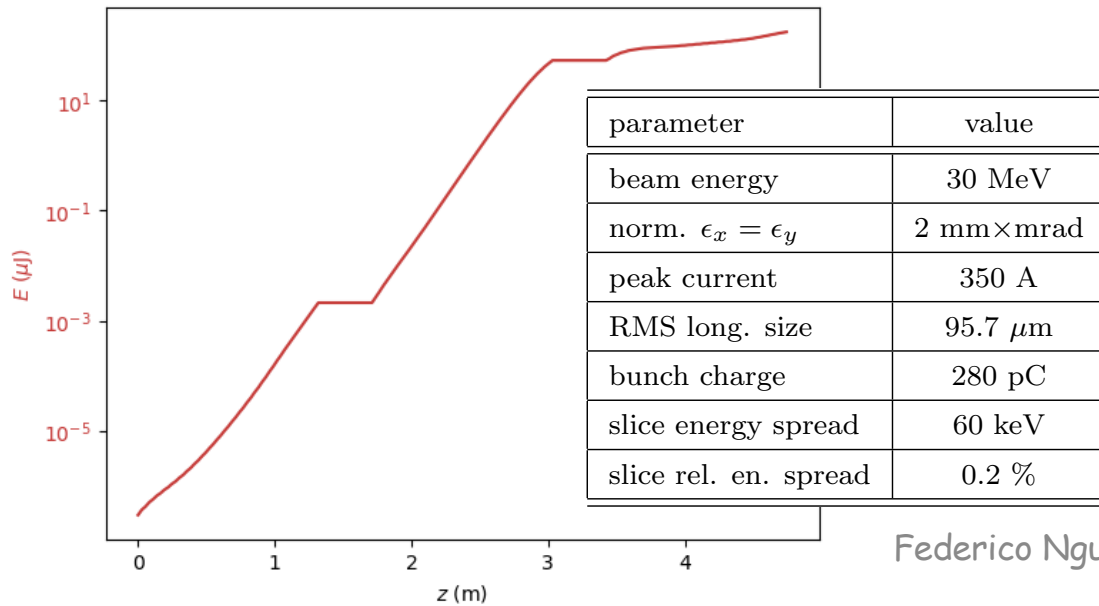
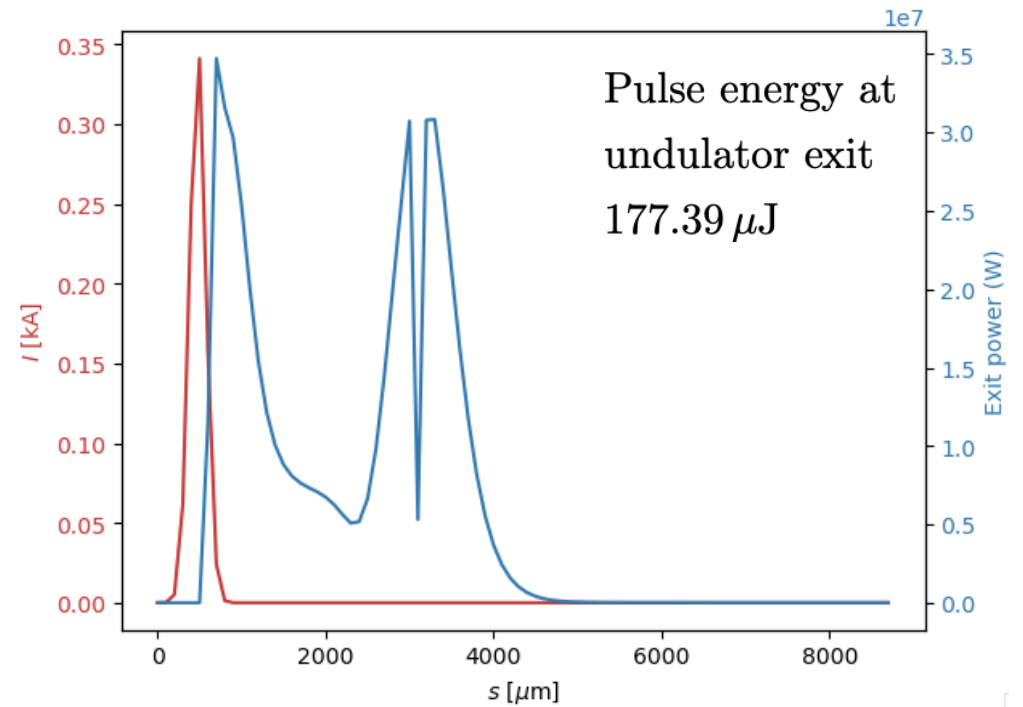
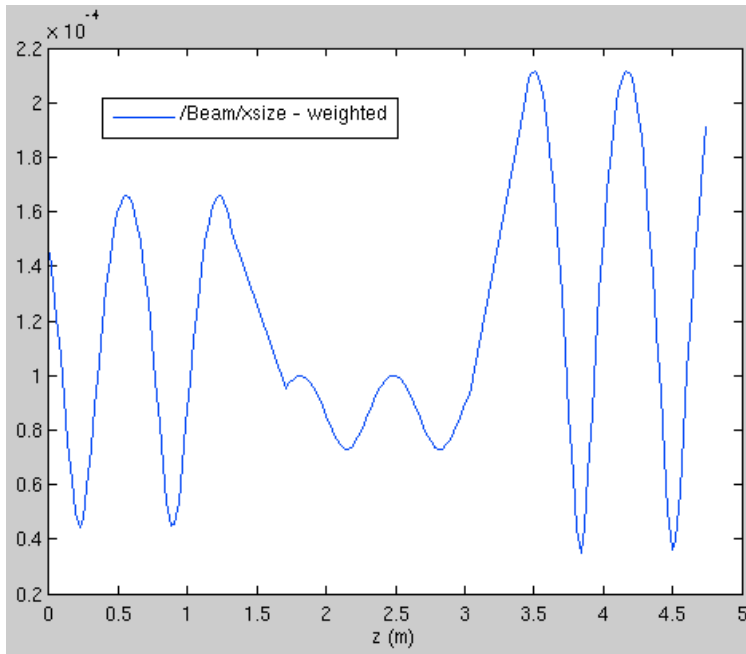
$$\gamma := \frac{E}{m_0 \cdot c^2} = 88.063$$

$$\lambda_0 := 30 \cdot \mu\text{m}$$

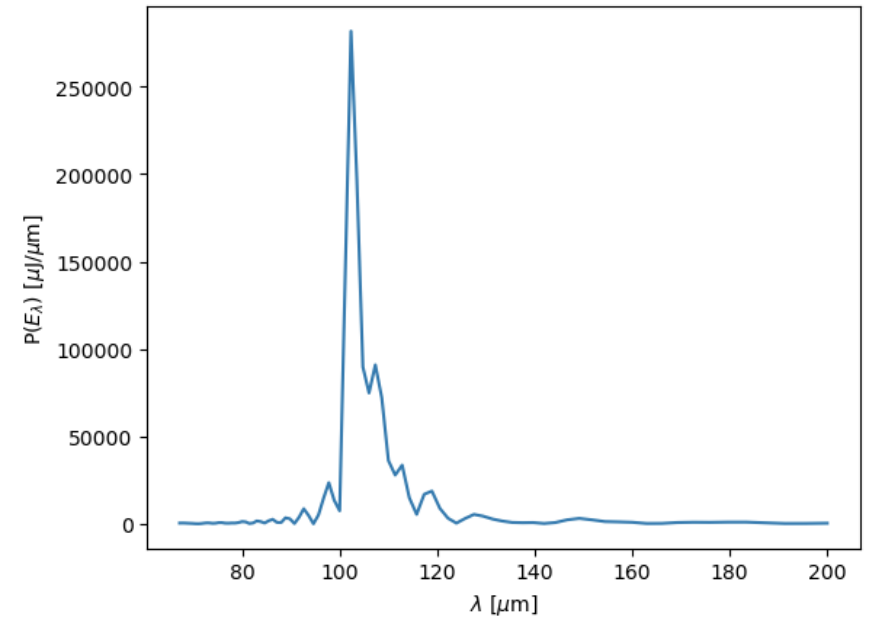
$$K = 2.731$$



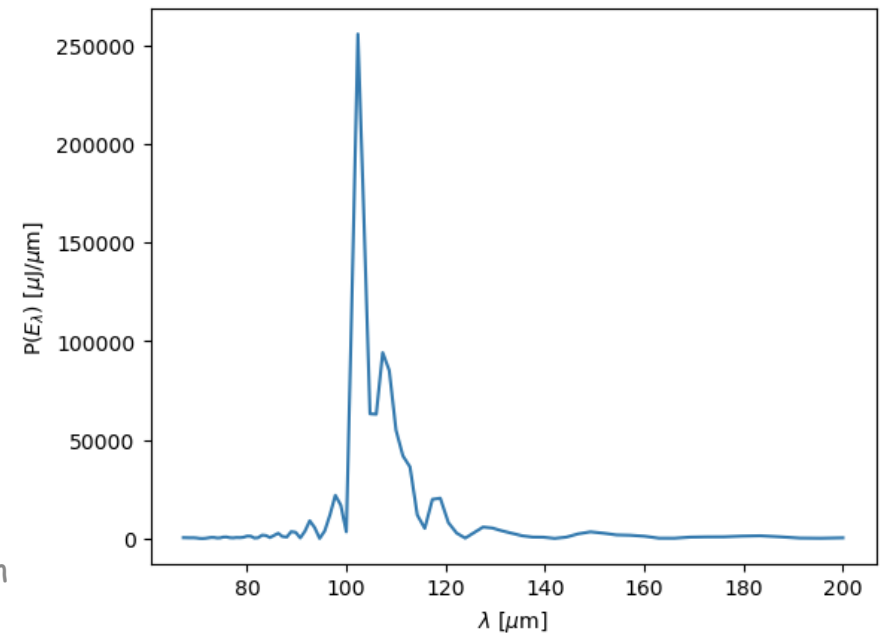
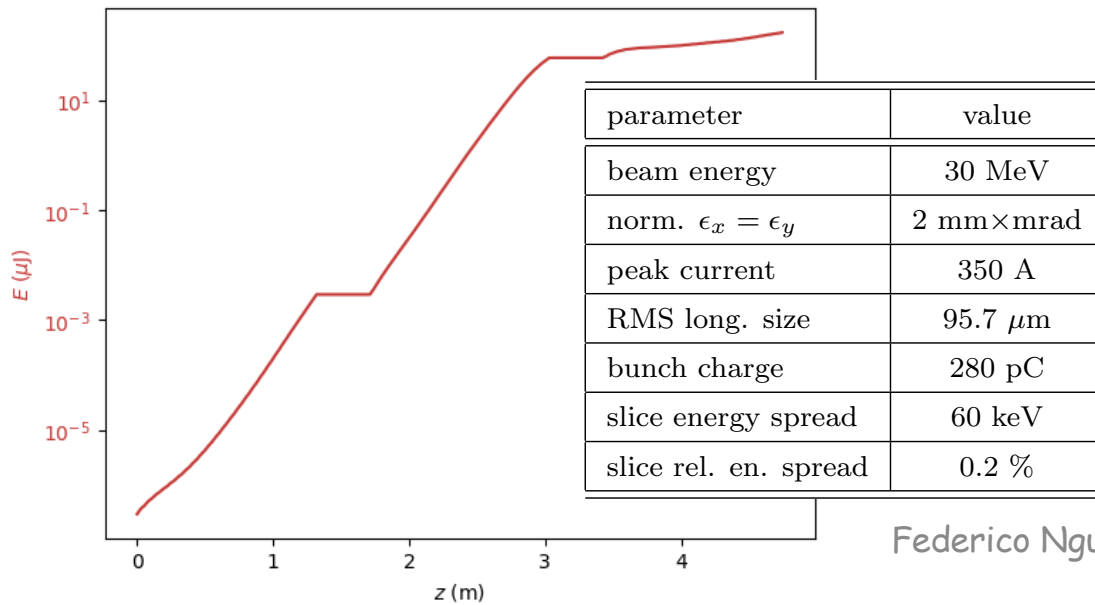
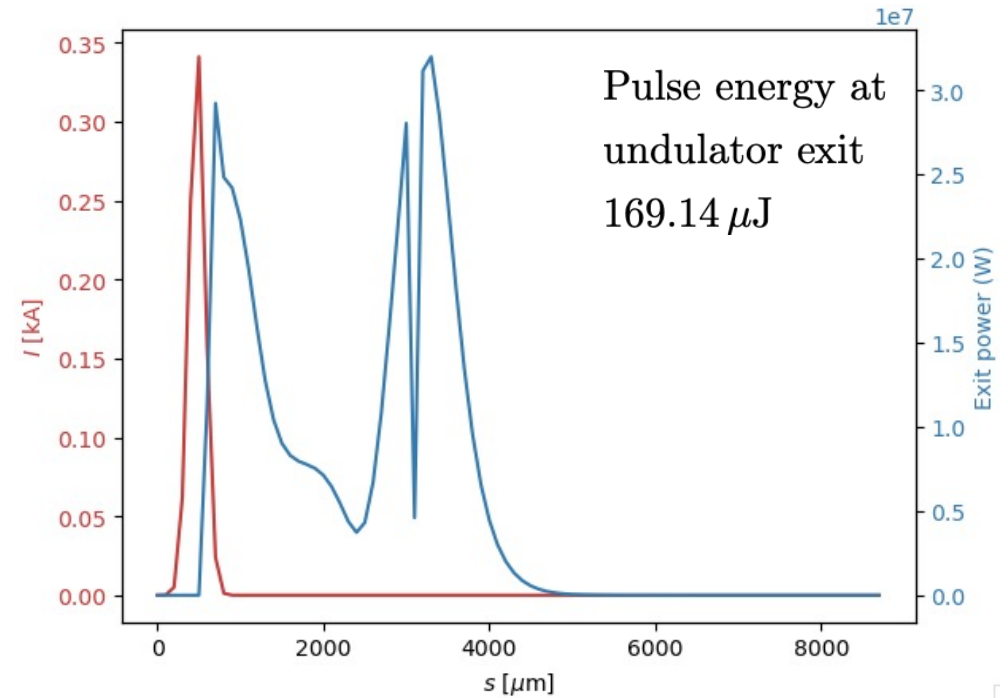
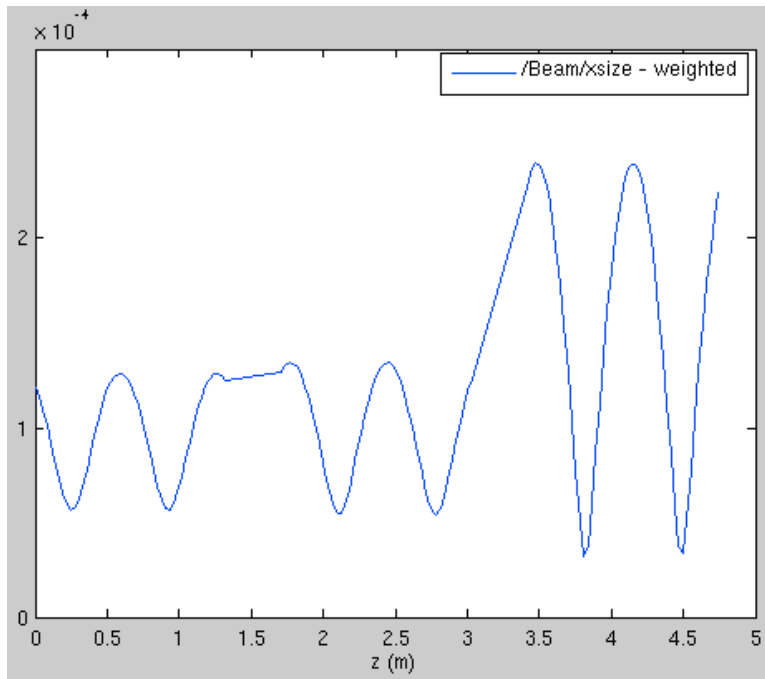
# Genesis4 time dependent eigenbeta at 2<sup>nd</sup> module 30MeV, 100 $\mu\text{m}$ , circ. pol., current Gauss distribution



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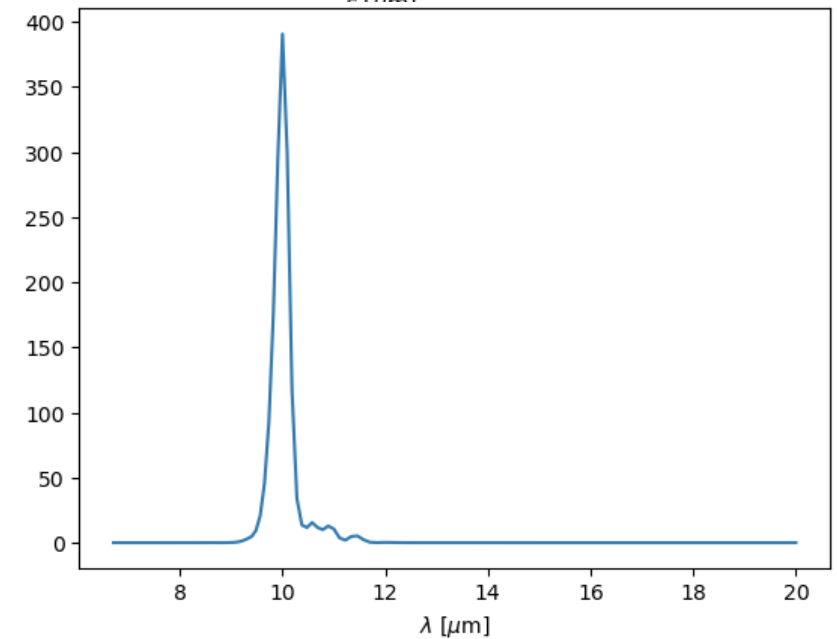
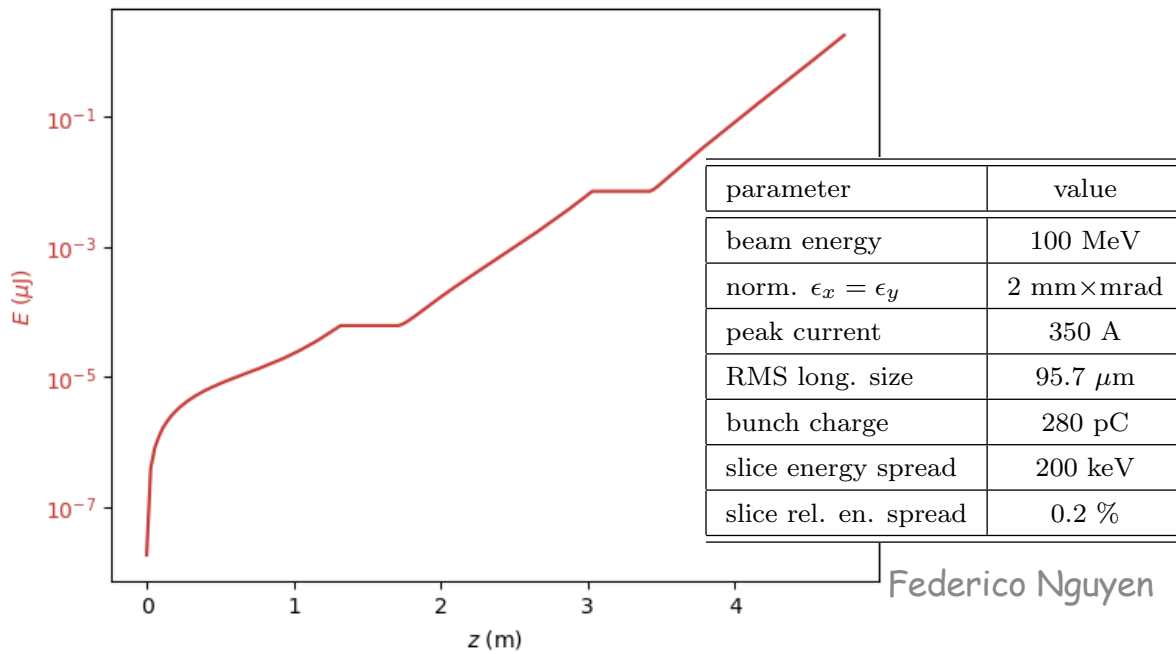
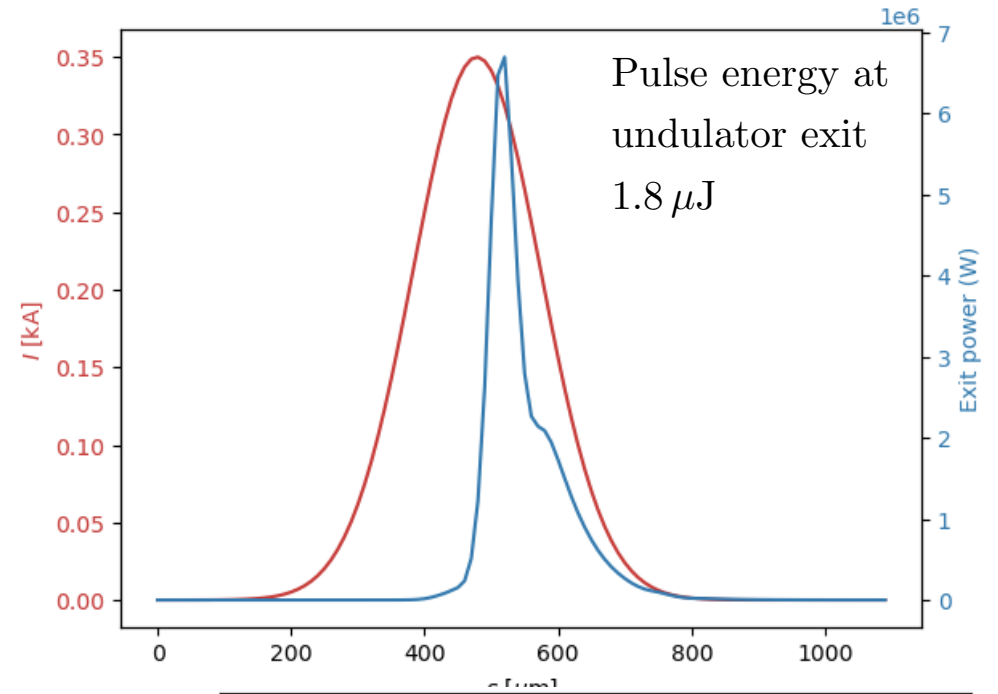
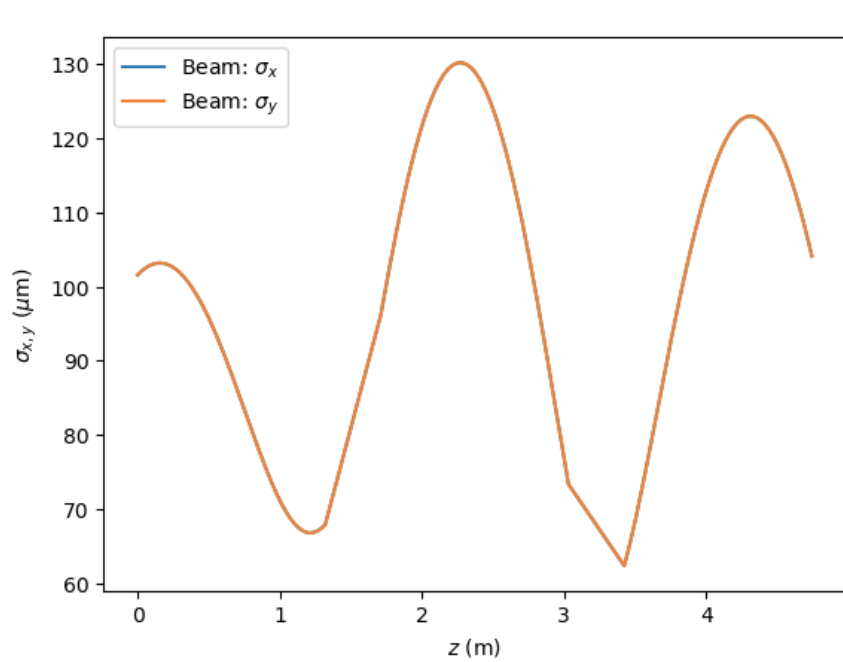


# Genesis4 time dependent exact periodic 30MeV, 100 $\mu\text{m}$ , circ. pol., current Gauss distribution



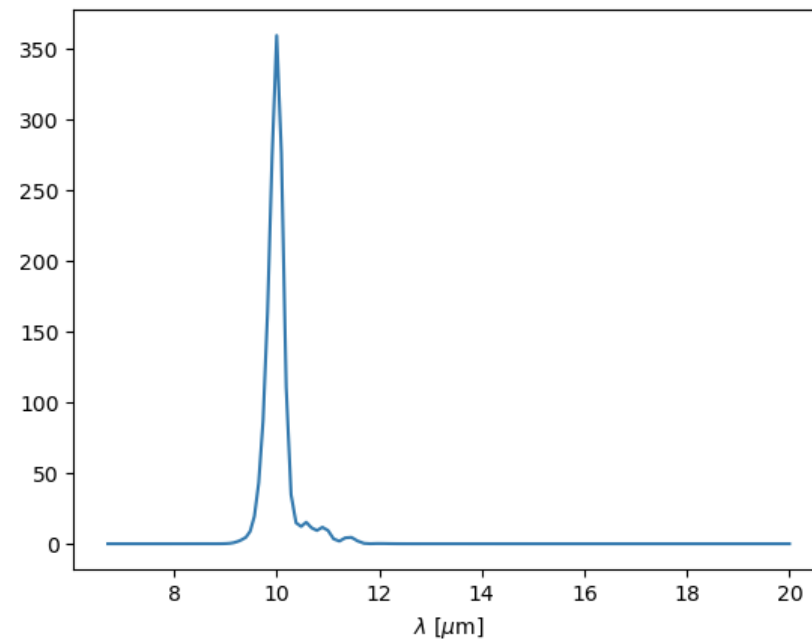
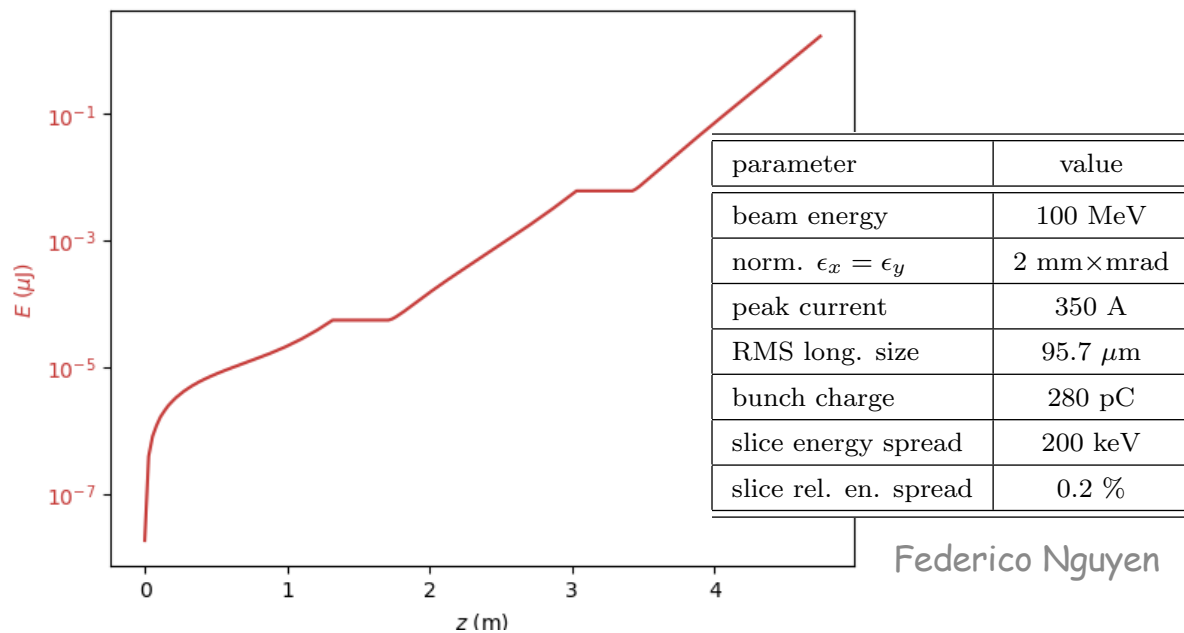
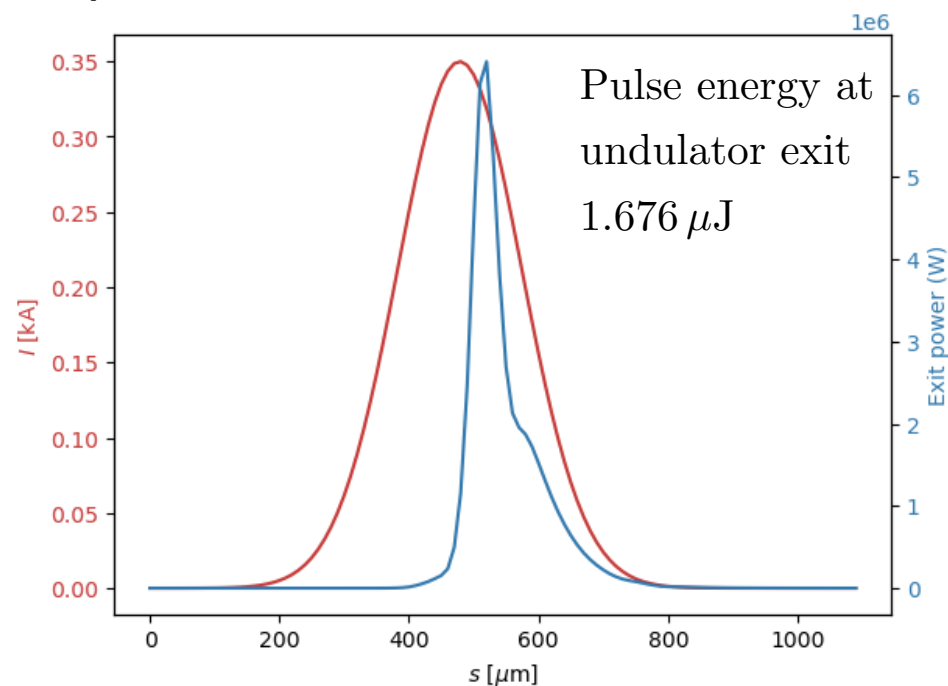
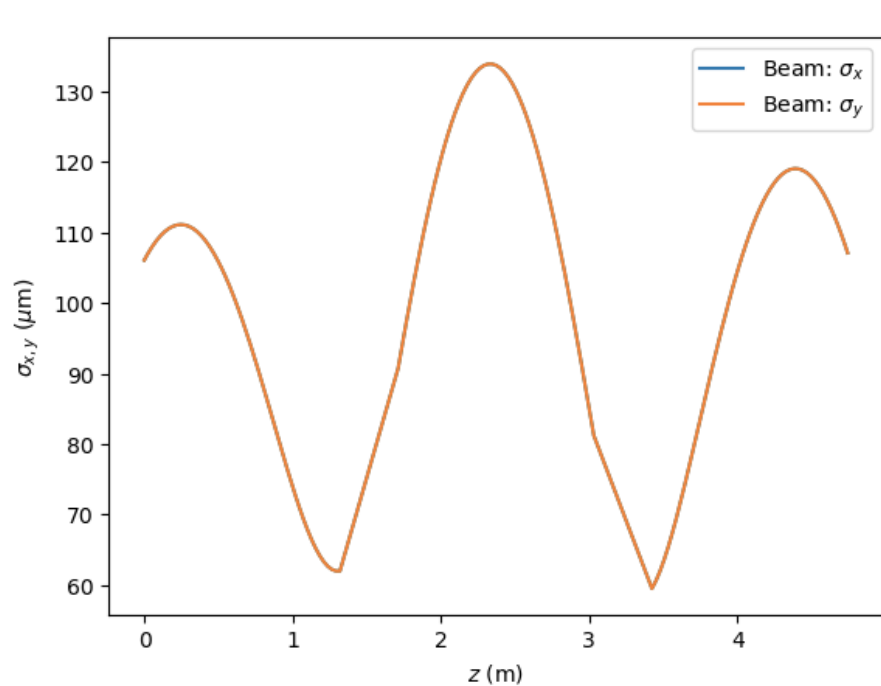
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# Genesis4 time dependent exact periodic 100MeV, 10 $\mu\text{m}$ , circ. pol., **Case 1**

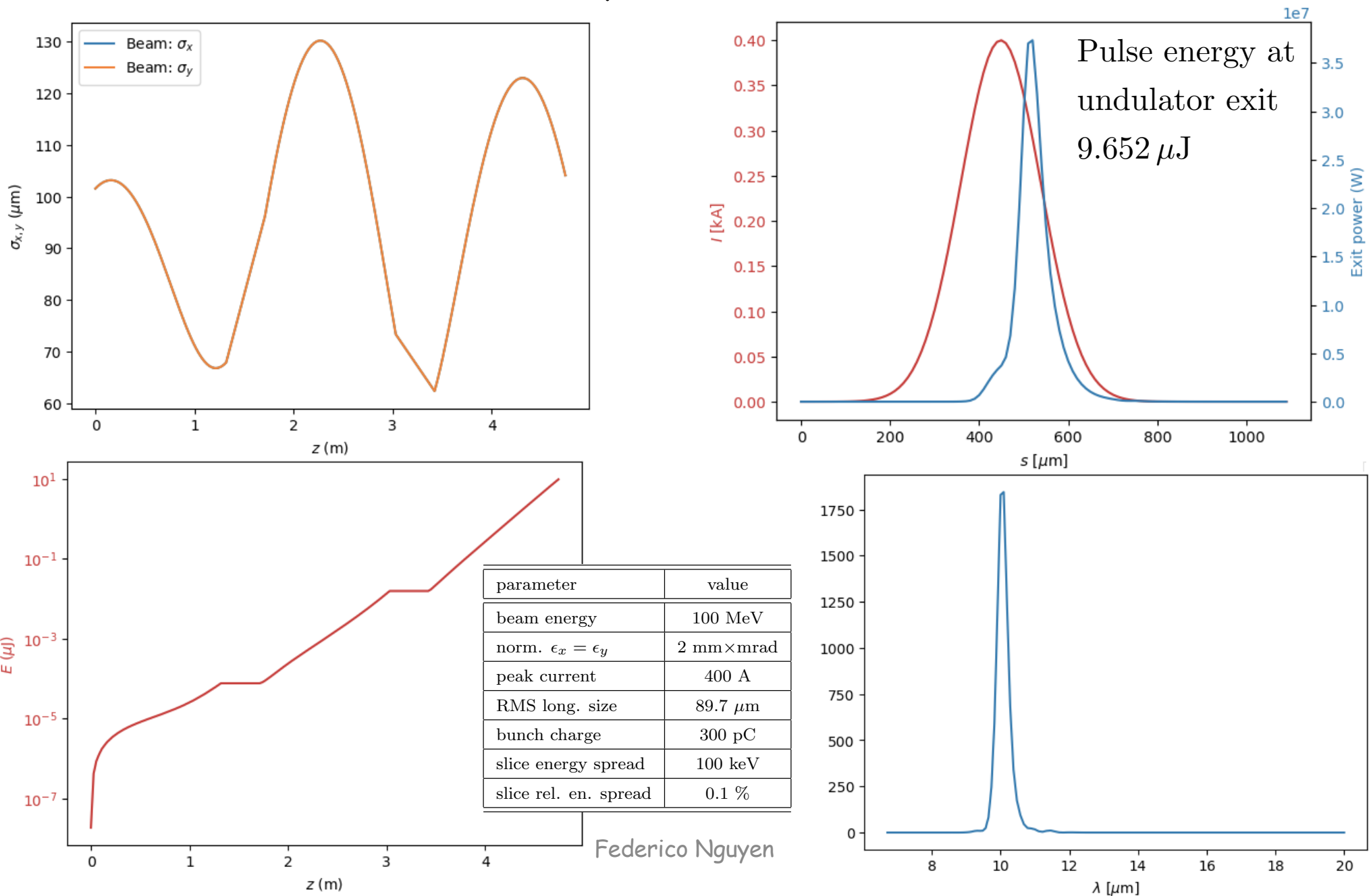


# Genesis4 time dependent eigenbeta at 2<sup>nd</sup> module

## 100MeV, 10 $\mu\text{m}$ , circ. pol., **Case 1**



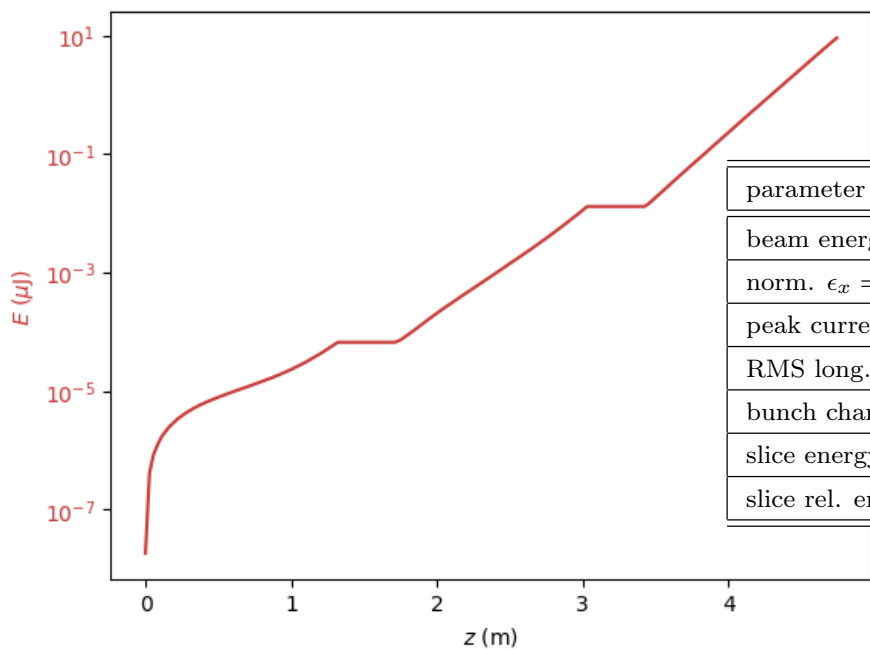
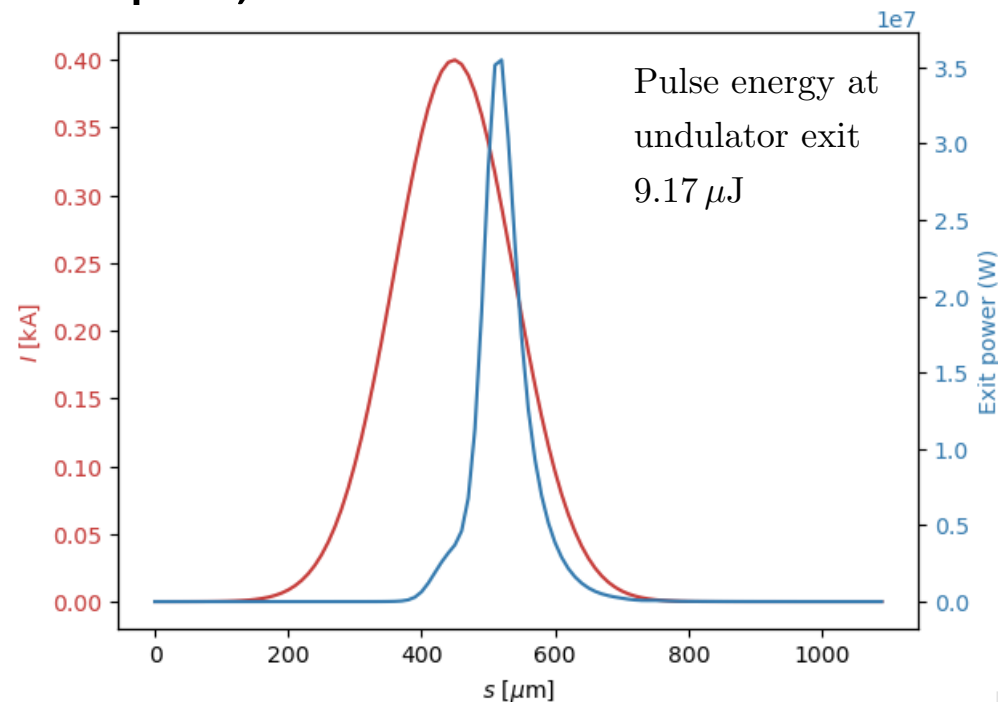
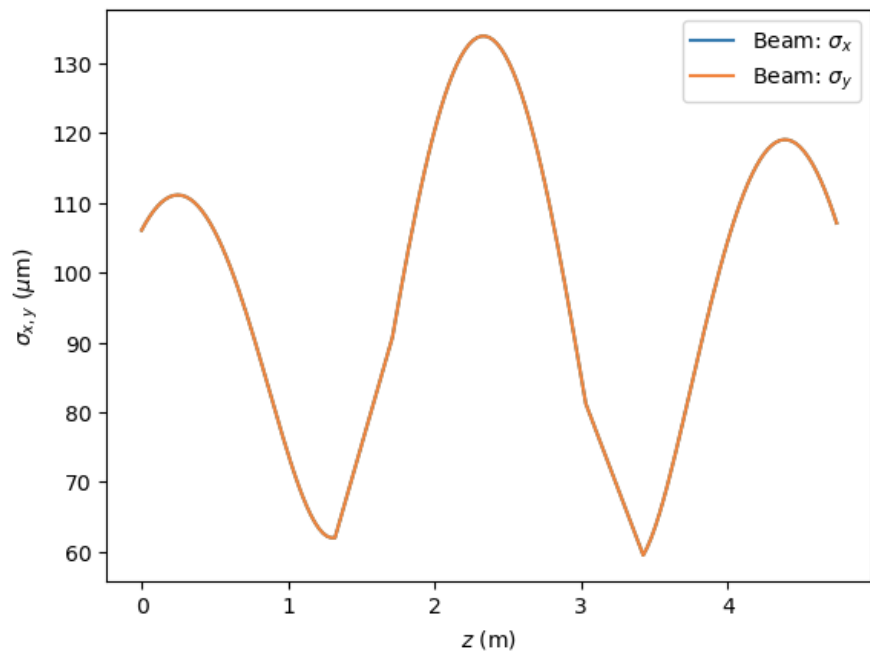
# Genesis4 time dependent exact periodic 100MeV, 10 $\mu\text{m}$ , circ. pol., **Case 2**



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# Genesis4 time dependent eigenbeta at 2<sup>nd</sup> module

## 100MeV, 10 $\mu$ m, circ. pol., **Case 2**



parameter	value
beam energy	100 MeV
norm. $\epsilon_x = \epsilon_y$	2 mm $\times$ mrad
peak current	400 A
RMS long. size	89.7 $\mu$ m
bunch charge	300 pC
slice energy spread	100 keV
slice rel. en. spread	0.1 %

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