



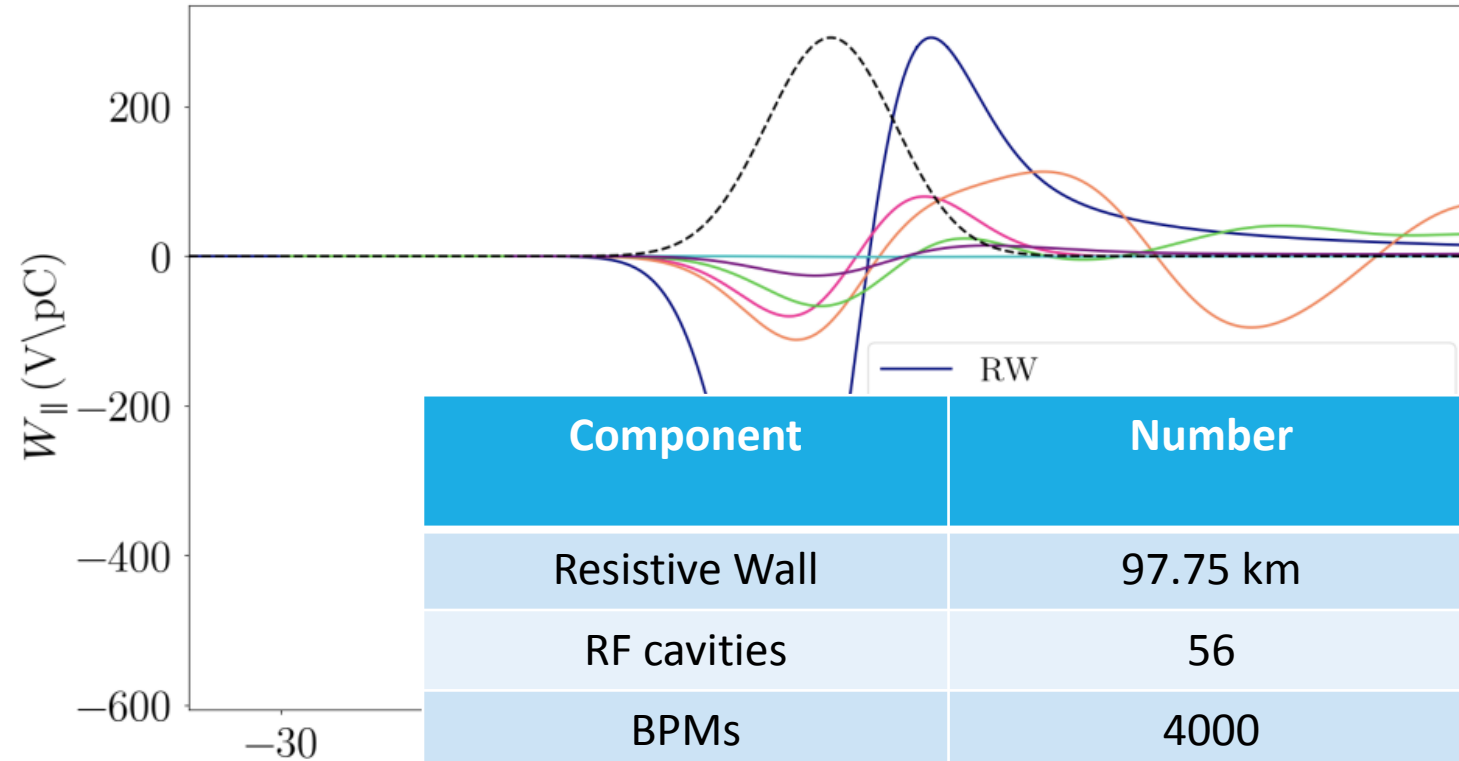
# PyHT results and the Impedance model of Future Circle Collider (FCCee)

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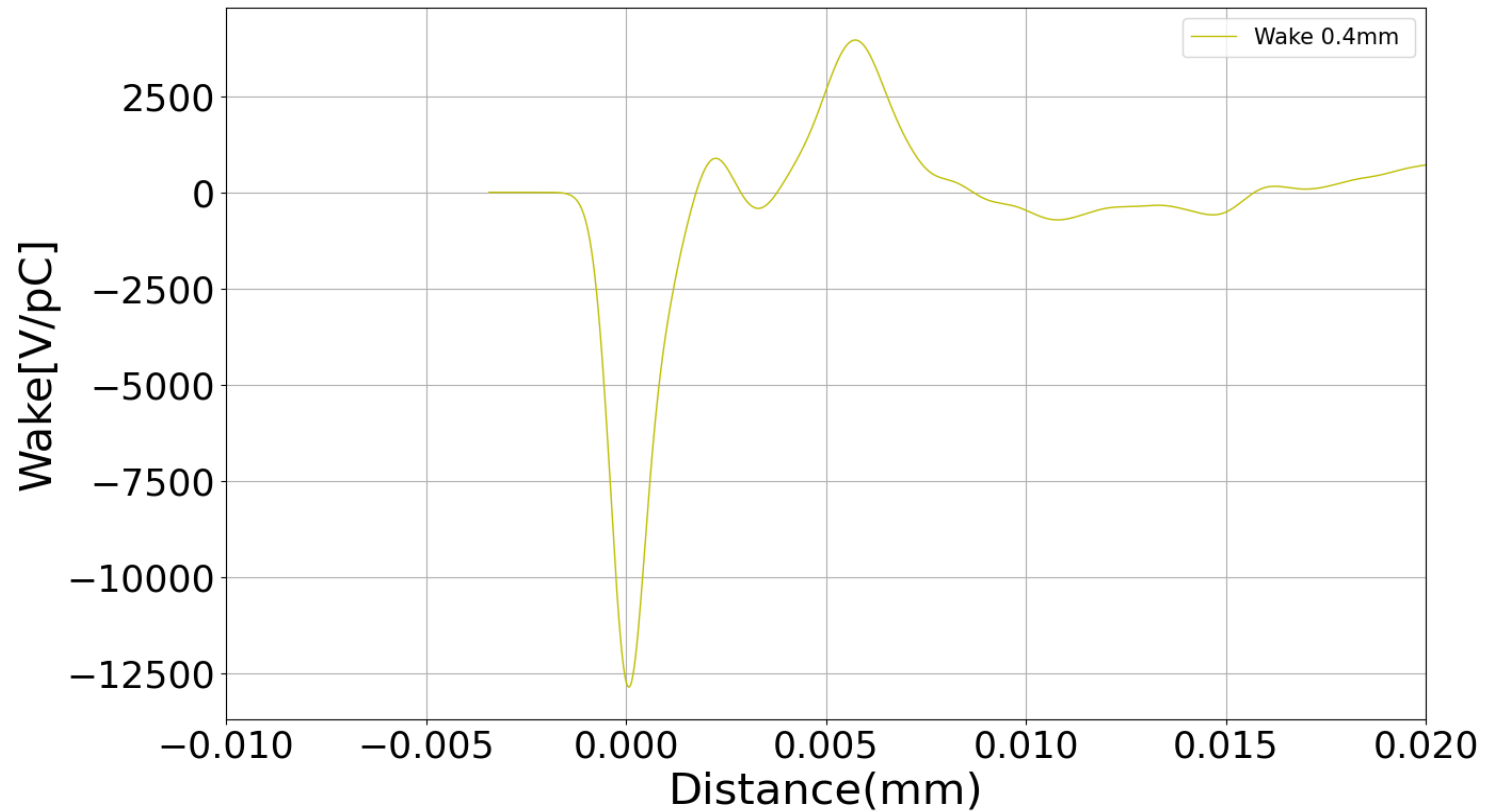
# Impedance Sources (PyHT simulations)

Longitudinal wake potentials for a Gaussian bunch with nominal bunch length  $\sigma_z = 3.5\text{mm}$  due to the main FCC-ee components.



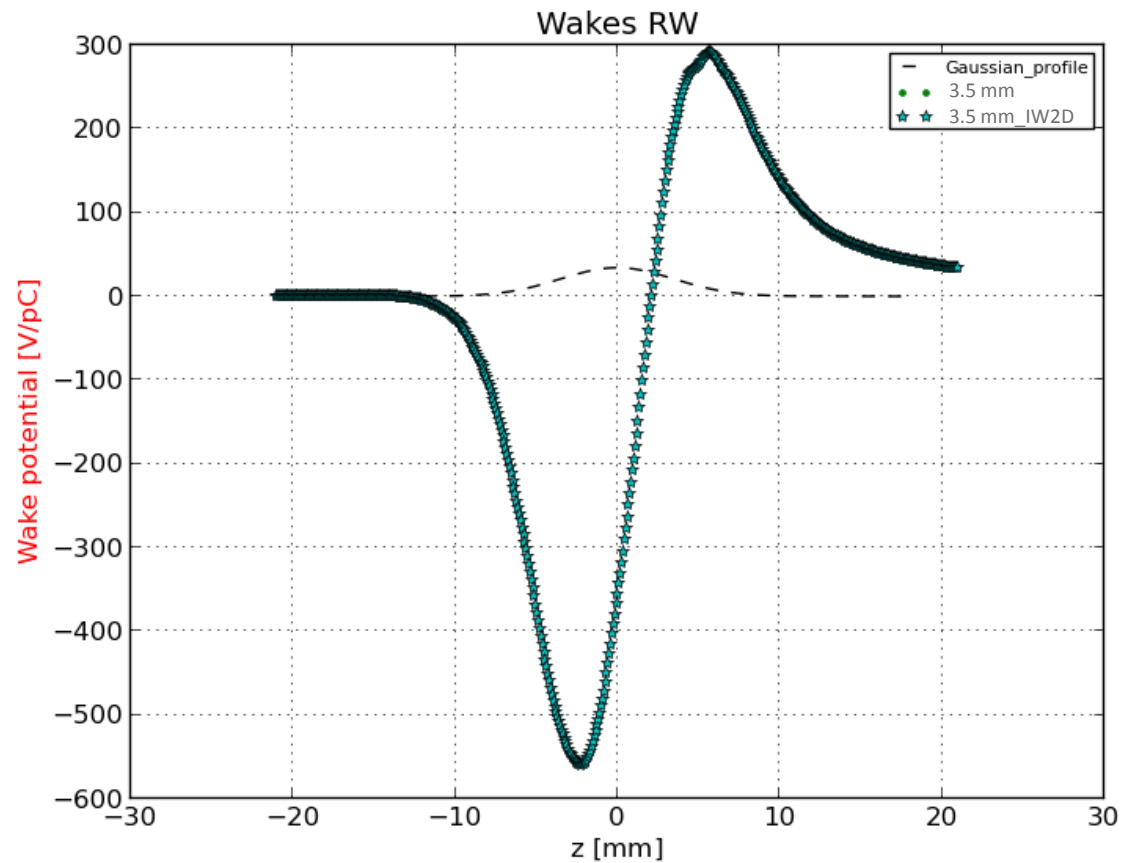
Component	Number	$K_{\text{loss}}(3.5\text{mm})[\text{V/pC}]$	$K_{\text{loss}}(12.1\text{mm})[\text{V/pC}]$
Resistive Wall	97.75 km	210	51.78
RF cavities	56	18.5	9.44
BPMs	4000	40.1	4.81
Bellows	8000	49	4.7e-5
RF double tapers	14	26.6	2.5116

# Wake potential of 0.4mm bunch length used as input for PyHT.

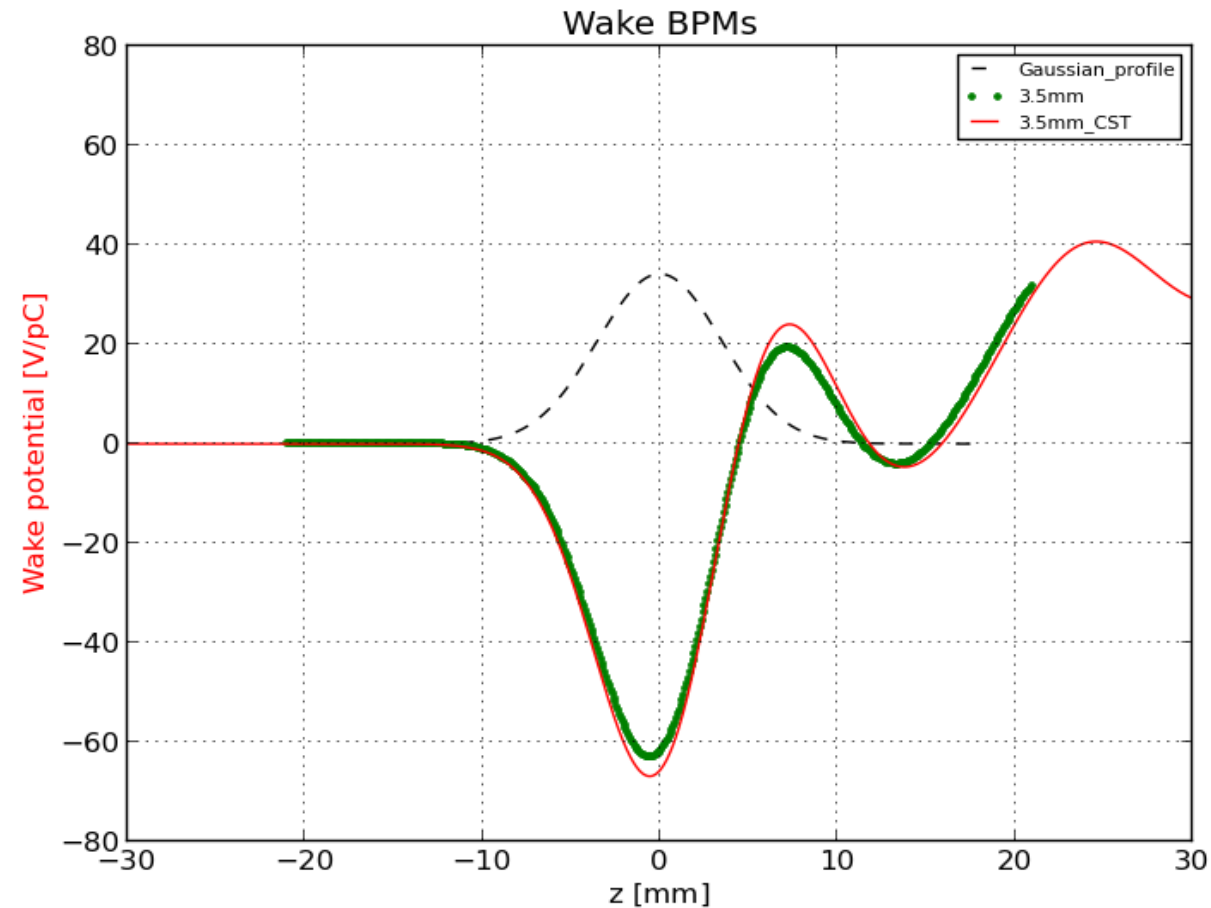


BPMs

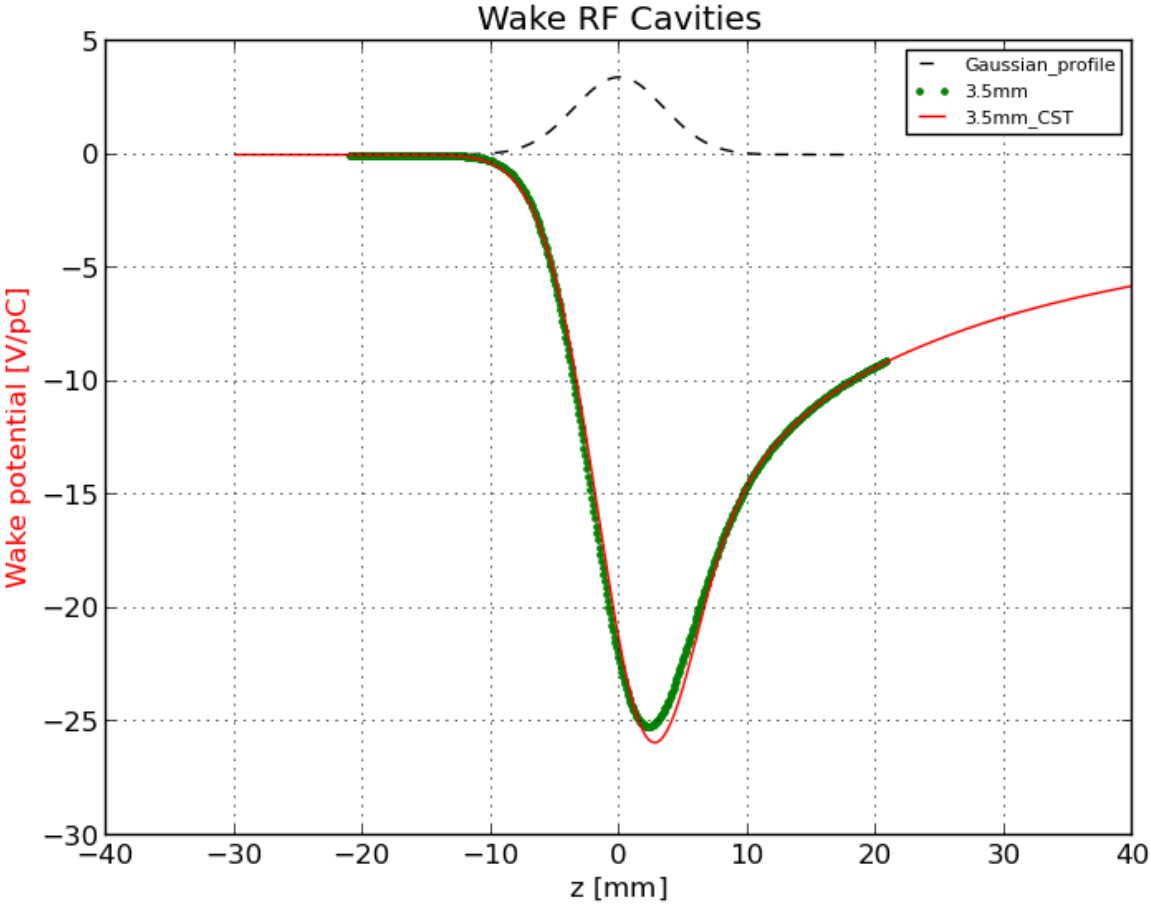
# Comparison of the wake potential of 3.5 mm bunch length between PyHT and IW2D: Resistive Wall



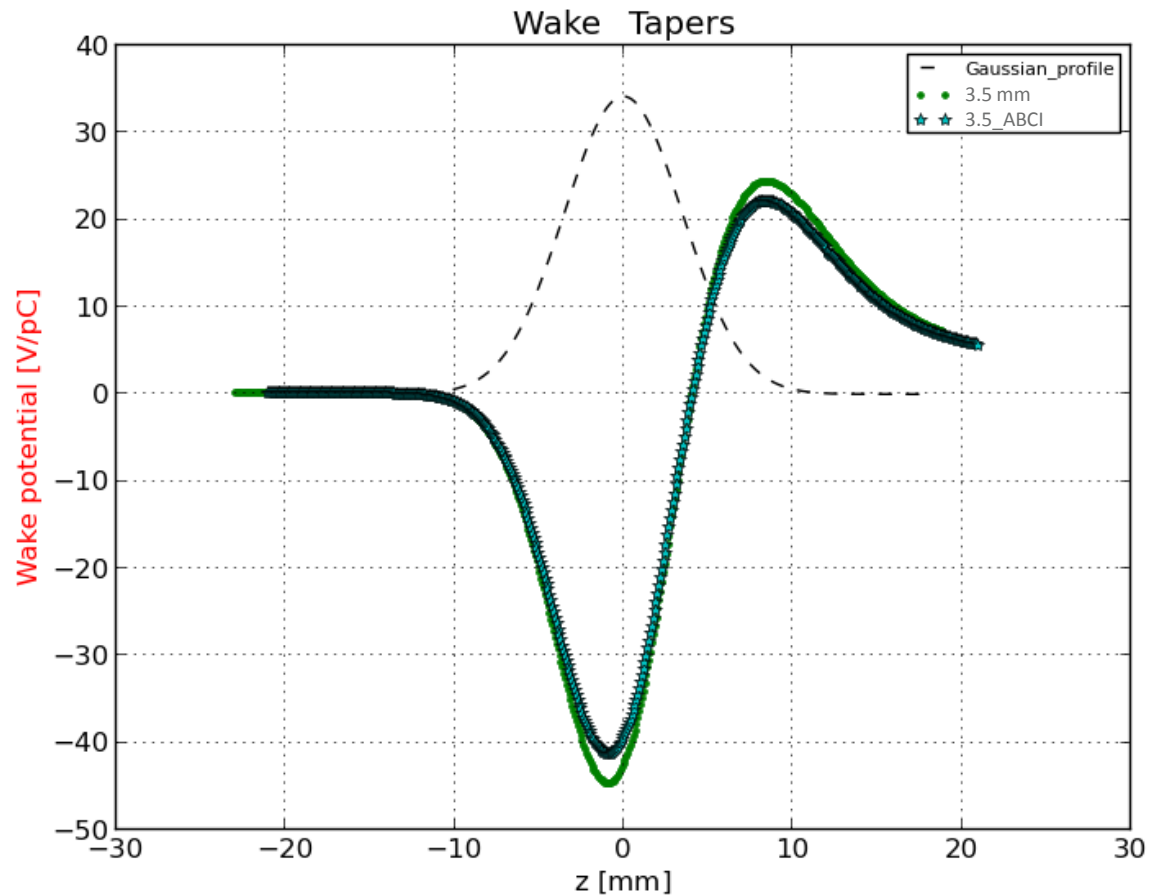
# Comparison of the wake potential of 3.5 mm bunch length between PyHT and CST: BPMs

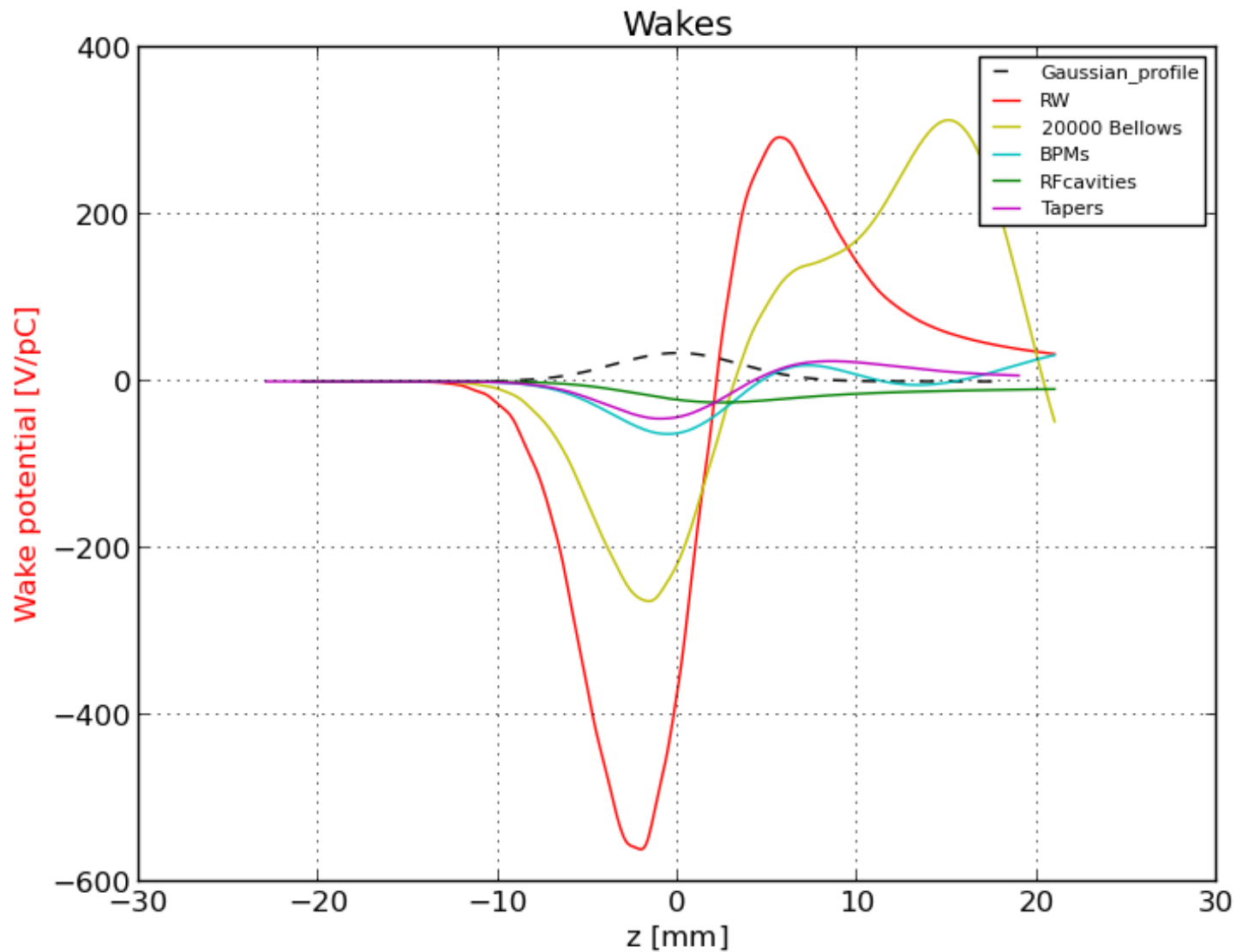


# Comparison of the wake potential of 3.5 mm bunch length between PyHT and CST: RF Cavity



# Comparison of the wake potential of 3.5 mm bunch length between PyHT and CST: RF double taper





# mm bunch flow

considered 8000 Bellows

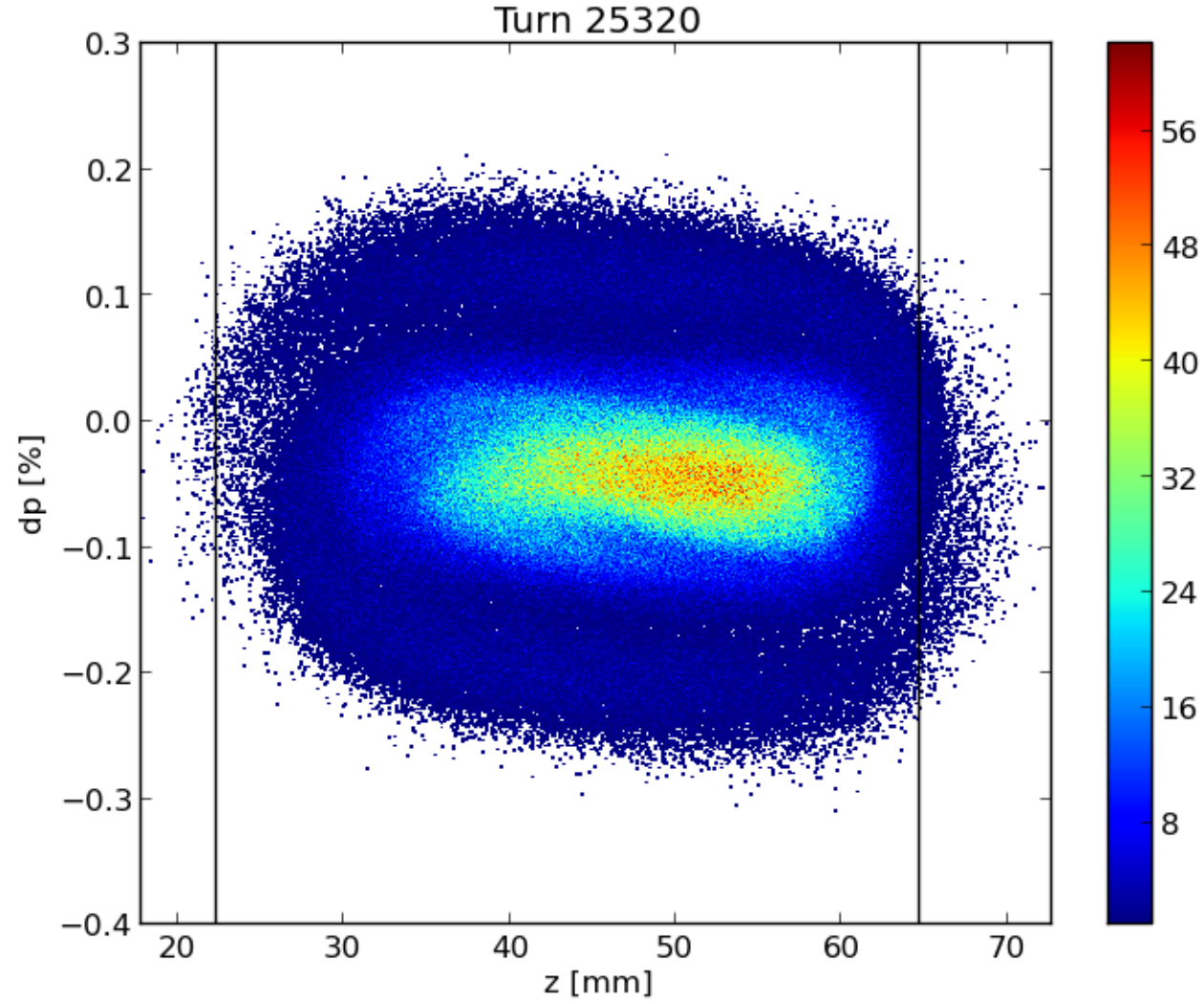
BUT

if archs (~ 79 km)

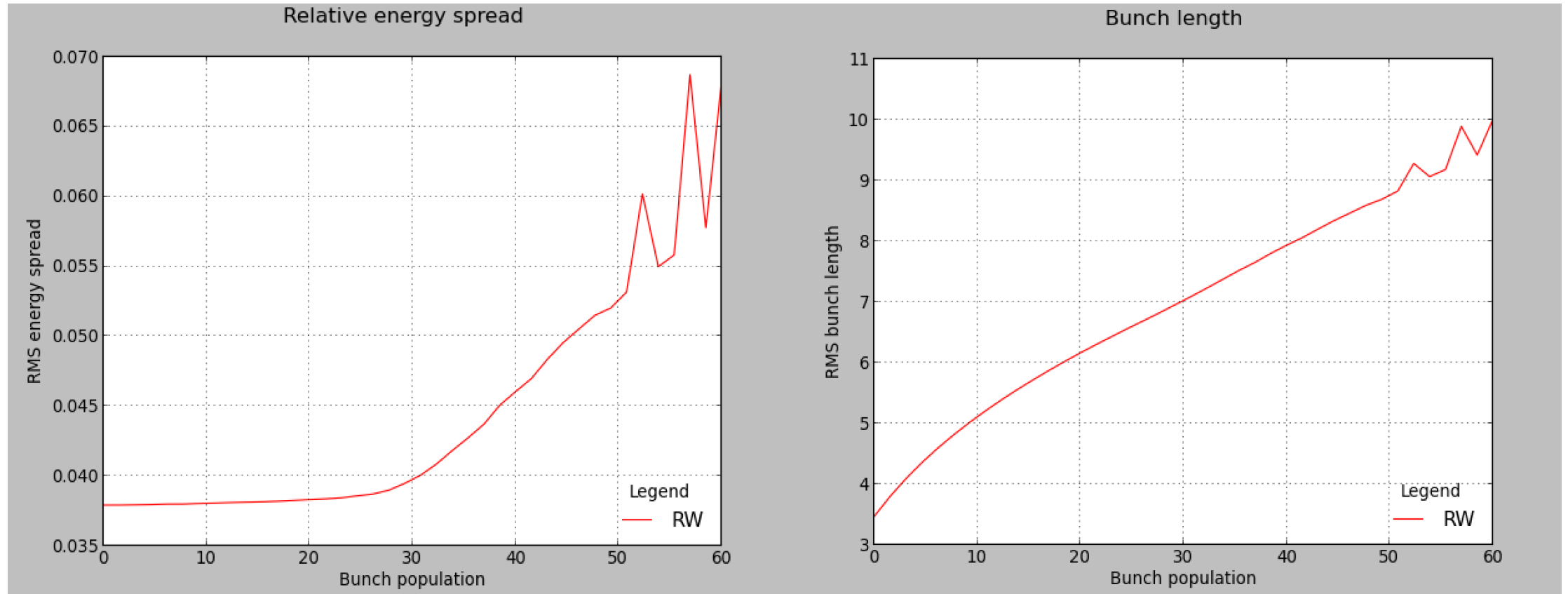
if arch is 8m long  
 so we have another  
 before any quadrupole

20000 Bellows

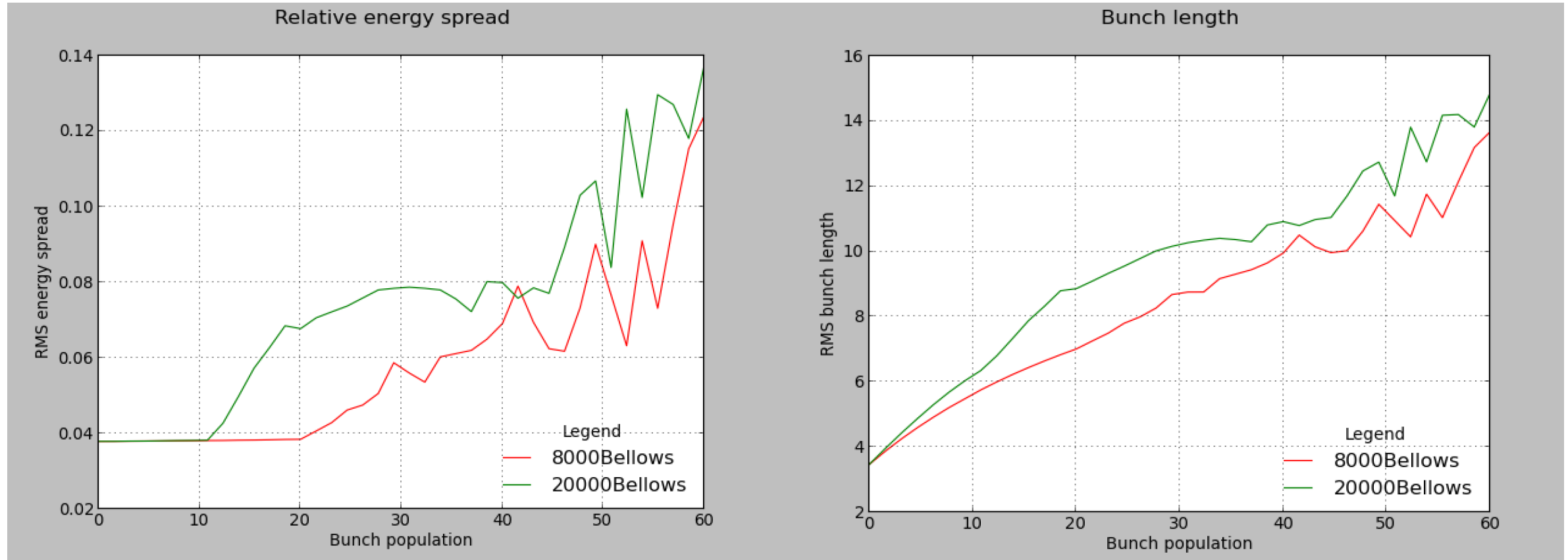




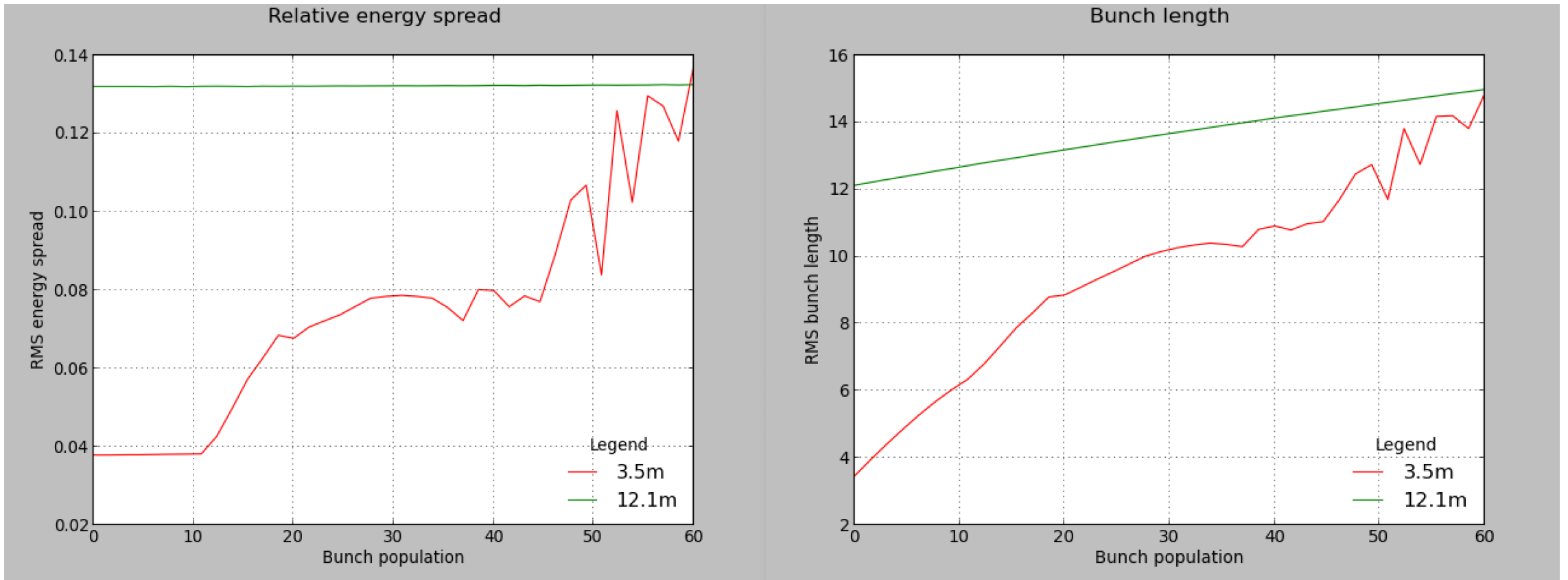
# Single beam instabilities considering the only RW



# Single beam instabilities take into account every element (bunch length of 3.5 mm)



# Evaluation of the single beam instability for different bunch length considering 20000 Bellows



# Thanks for your attention!

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