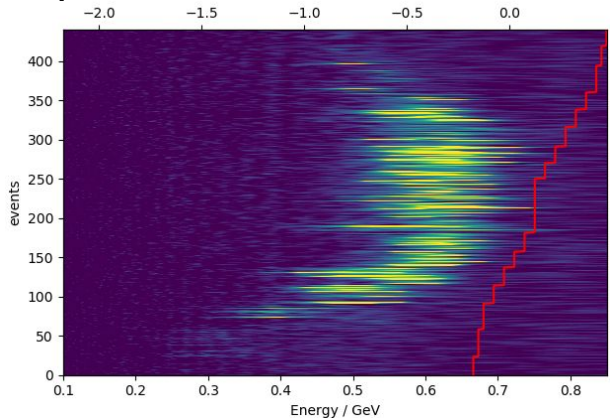
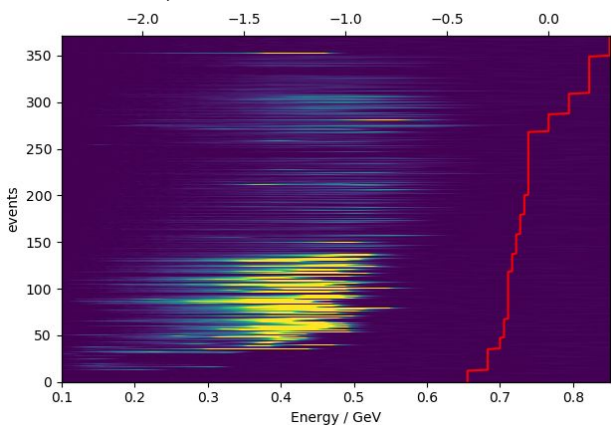


# Time delay scans

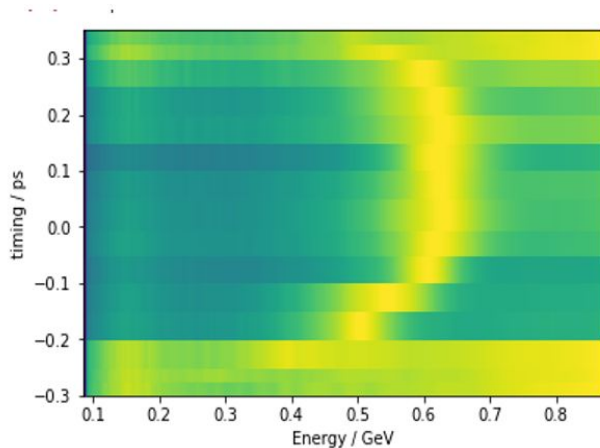
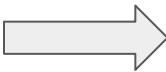
Sept. -200, off-axis timing / ps



Nov. -600, on-axis timing / ns



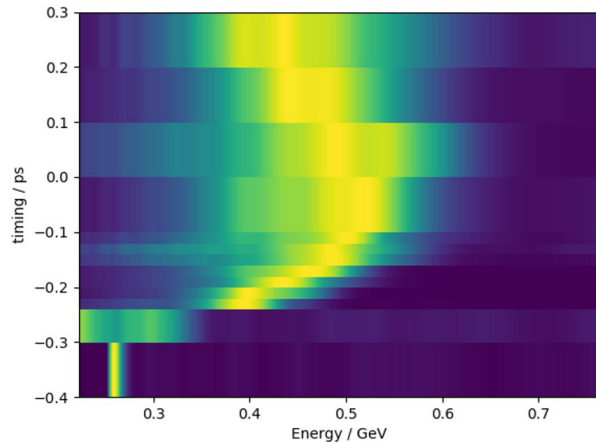
Sum and  
normalize



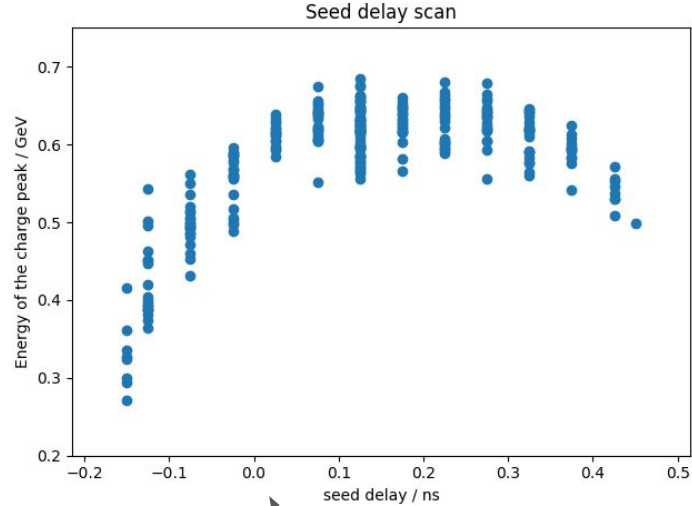
Trends  
beautiful nice  
and clear....

But...

Are they  
consistent with  
naive  
expectations?

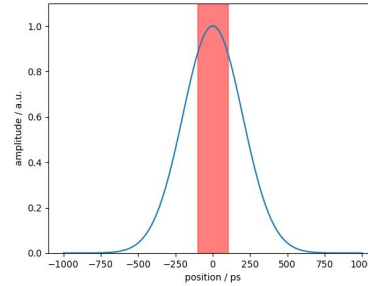


# What is consistent?

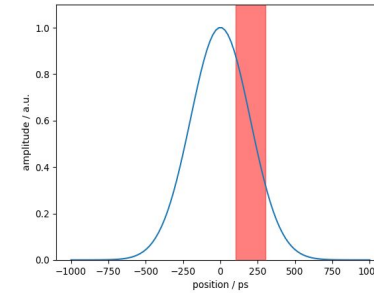
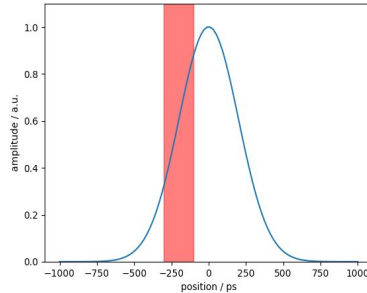


0 might be not 0  
need to check

For both: large positive and negative delays  
⇒ electron energy decreases

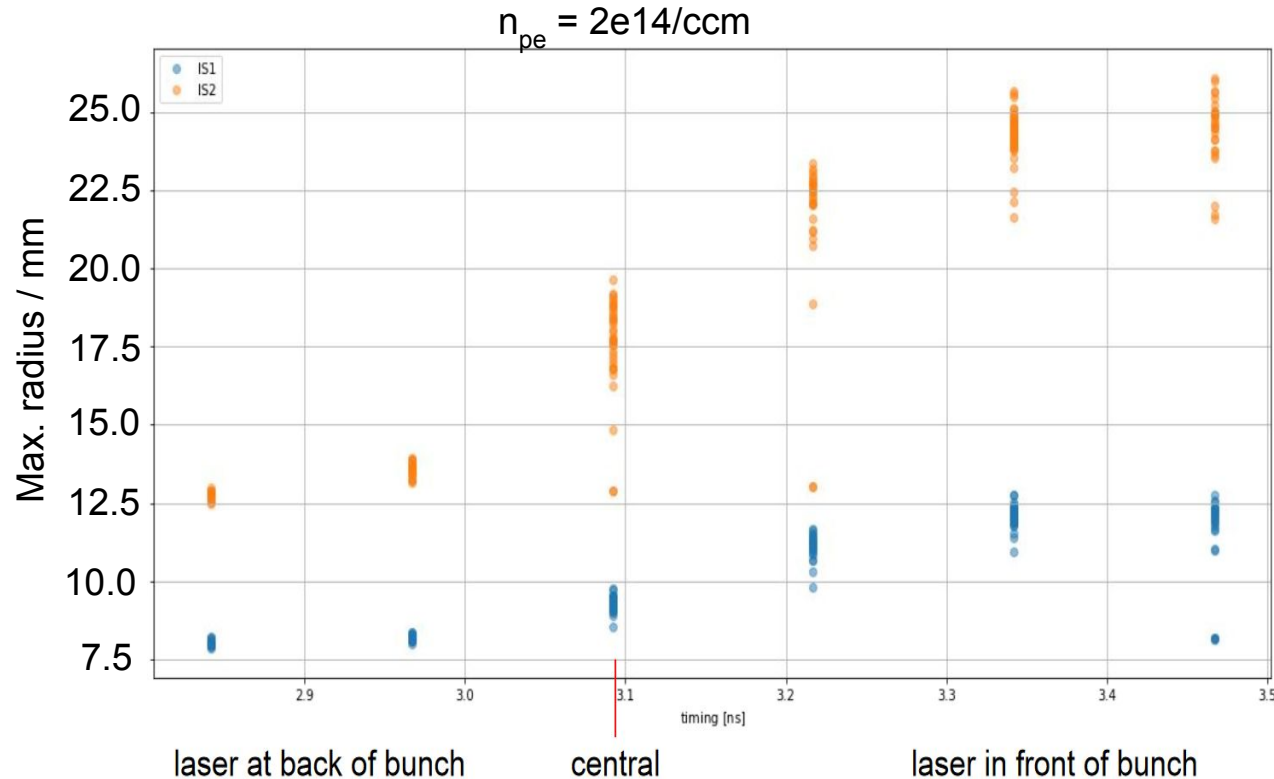


Maximum in  
measurements is  
around + 100 ps



⇒ as expected as  
both number of  
protons and initial  
peak seed fields  
decrease

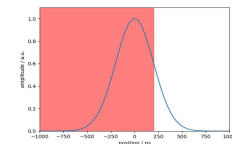
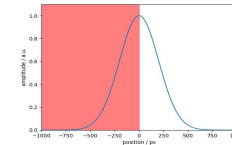
# What is somewhat consistent?



Transverse wakefields are increasing when the bunch is seeded further in the front..

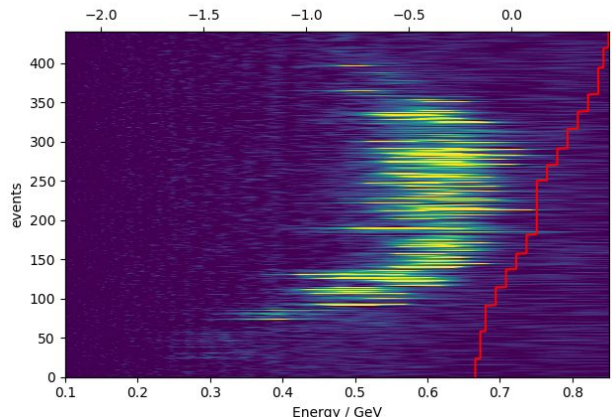
⇒ more protons contributing to wakefield growth

⇒ consistent as in this case we measure the overall maximum wakefield amplitude, not the amplitude at a fixed xi



# Difficulties

Sept. -200, off-axis timing / ps



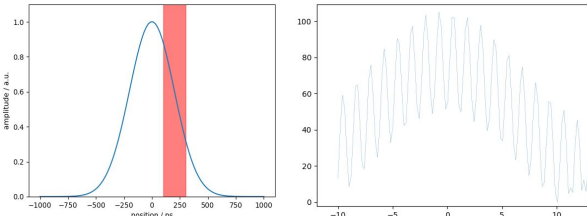
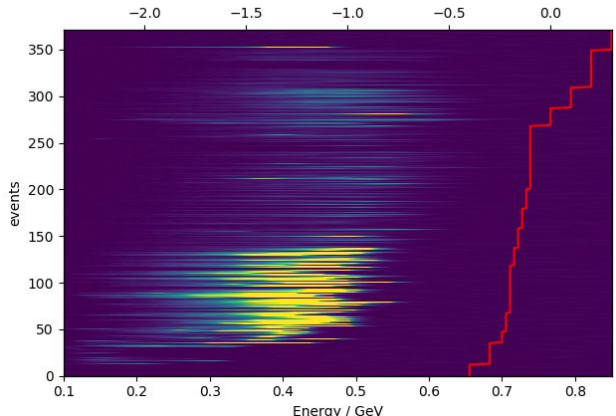
Overall energy gain is lower for an electron delay of 600 ps...  
⇒ could be due to the different injection?

For 600ps delay the maximum is not at +300...  
⇒ wakefield dynamics more complicated than simple considerations?

Energy decrease more when seeding in the back (than for the same value in the front)

⇒ wakefield dynamics more complicated than simple considerations? maybe its not the initial seed field at xi=0 that determines the growth, especially when the number of charges are increasing after the seed

Nov. -600, on-axis timing / ns



Two scans not performed under the same conditions...

# Conclusions

This analysis will be not straight-forward

I will need simulations