

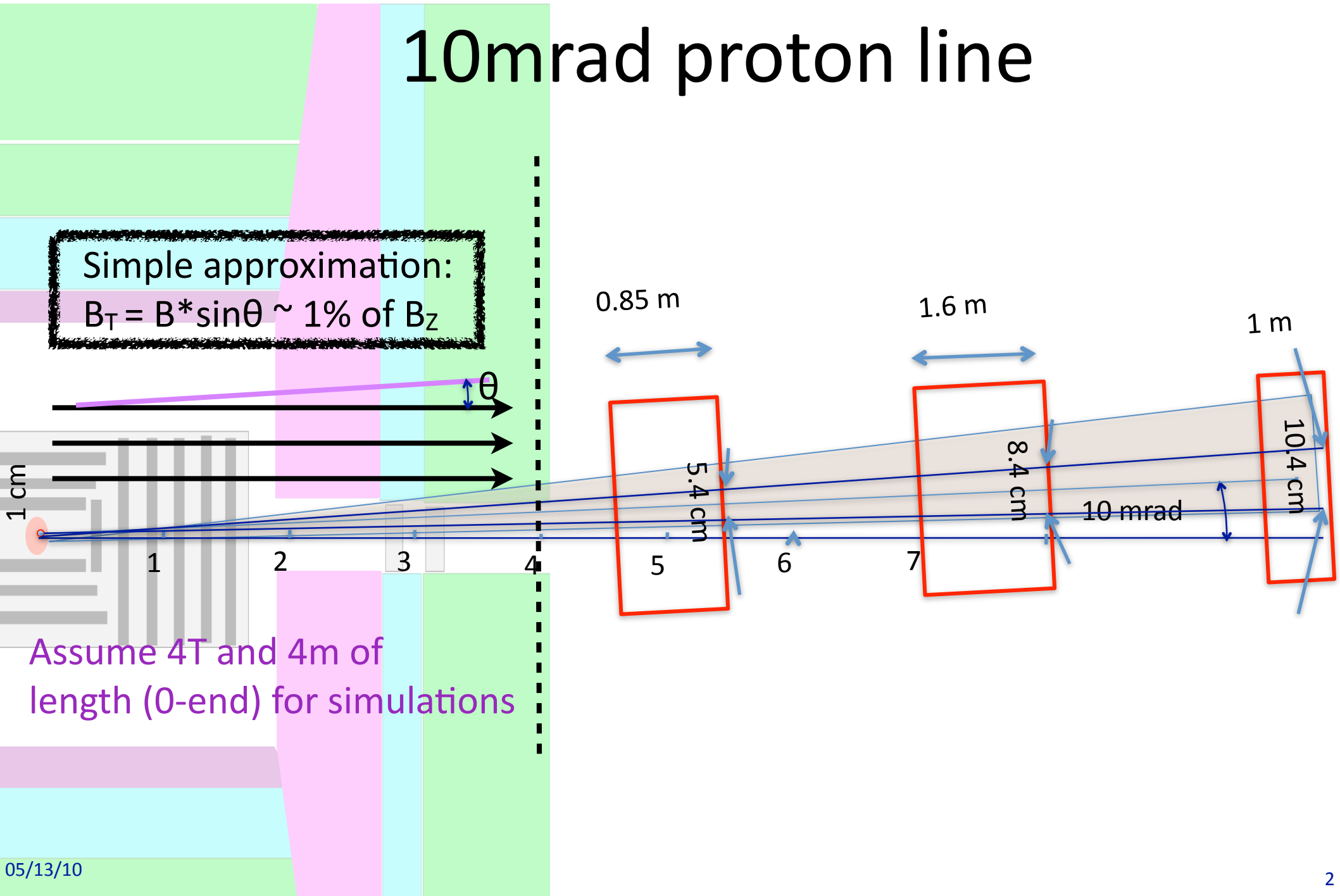
Forward protons
in diffractive processes
in ep and eAu

Update: with Solenoidal Field

JHL
5/13/2010

Solenoidal Field with 10mrad proton line

Simple approximation:
 $B_T = B \cdot \sin\theta \sim 1\% \text{ of } B_Z$

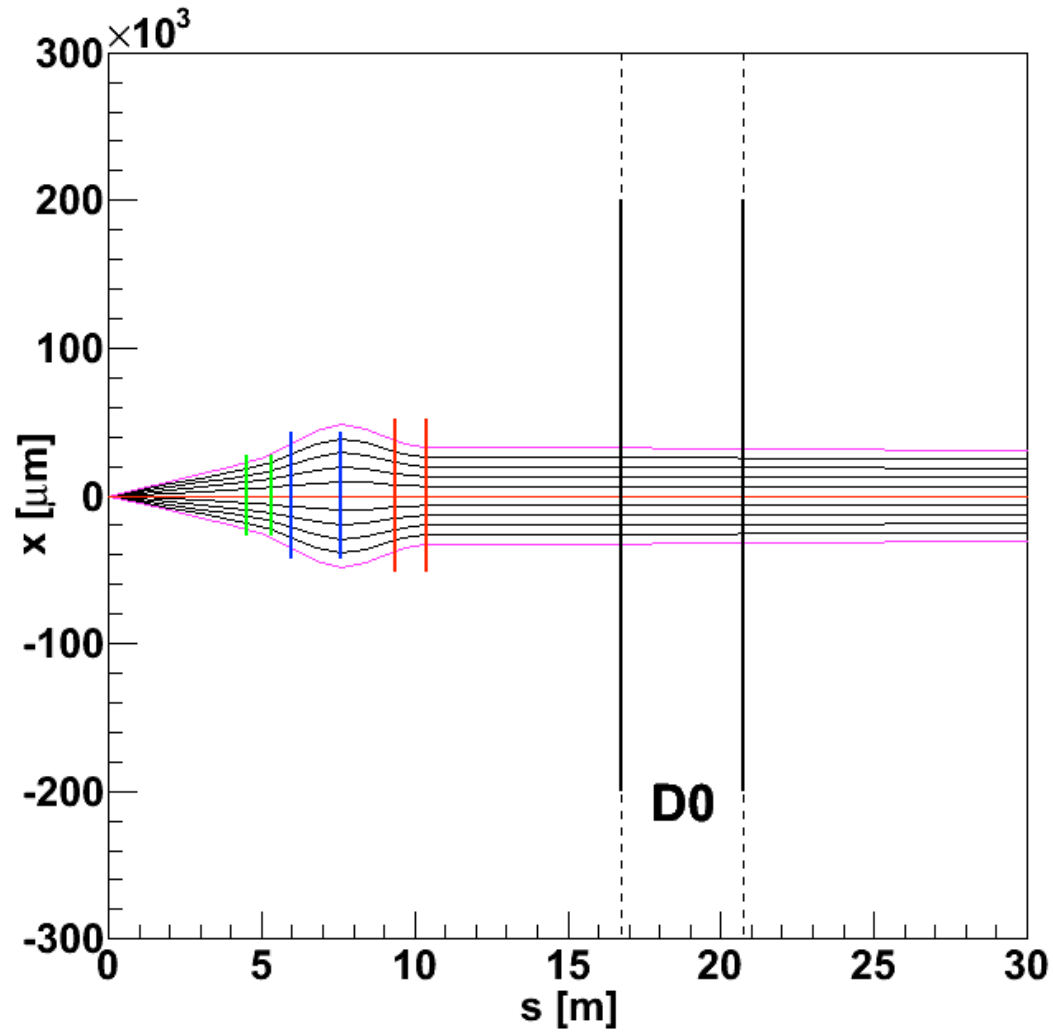


Solenoid Fields - Overview

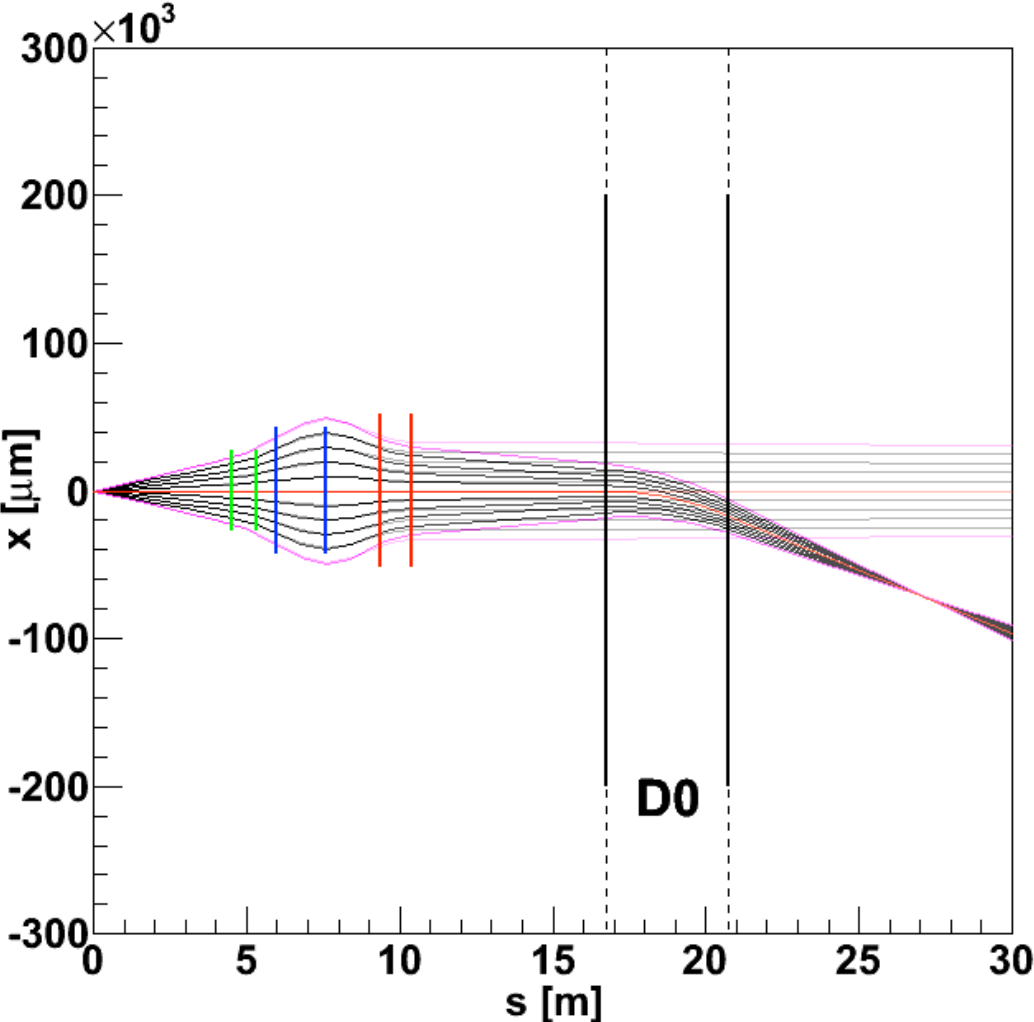
Experiment	Central Field	Length	Inner Diameter
STAR	0.5 T	4 m	4.2m
ZEUS	1.8 T	2.8 m	0.86 m
H1	1.2T	5.0 m	5.8 m
BABAR	1.5T	3.46 m	2.8 m
BELLE	1.5T	3.0 m	1.7 m
GlueX	2.0T	3.5 m	1.85 m
ATLAS	2.0T	5.3 m	2.44 m
CMS	4.0T	13.0 m	5.9 m
PANDA ^(*design)	2.0T	2.75m	1.62 m
CLAS12 ^(*design)	5.0T	1.19 m	0.96 m

Conclusion: ~4-5 Tesla fields, with length scale ~ inner diameter scale o.k.

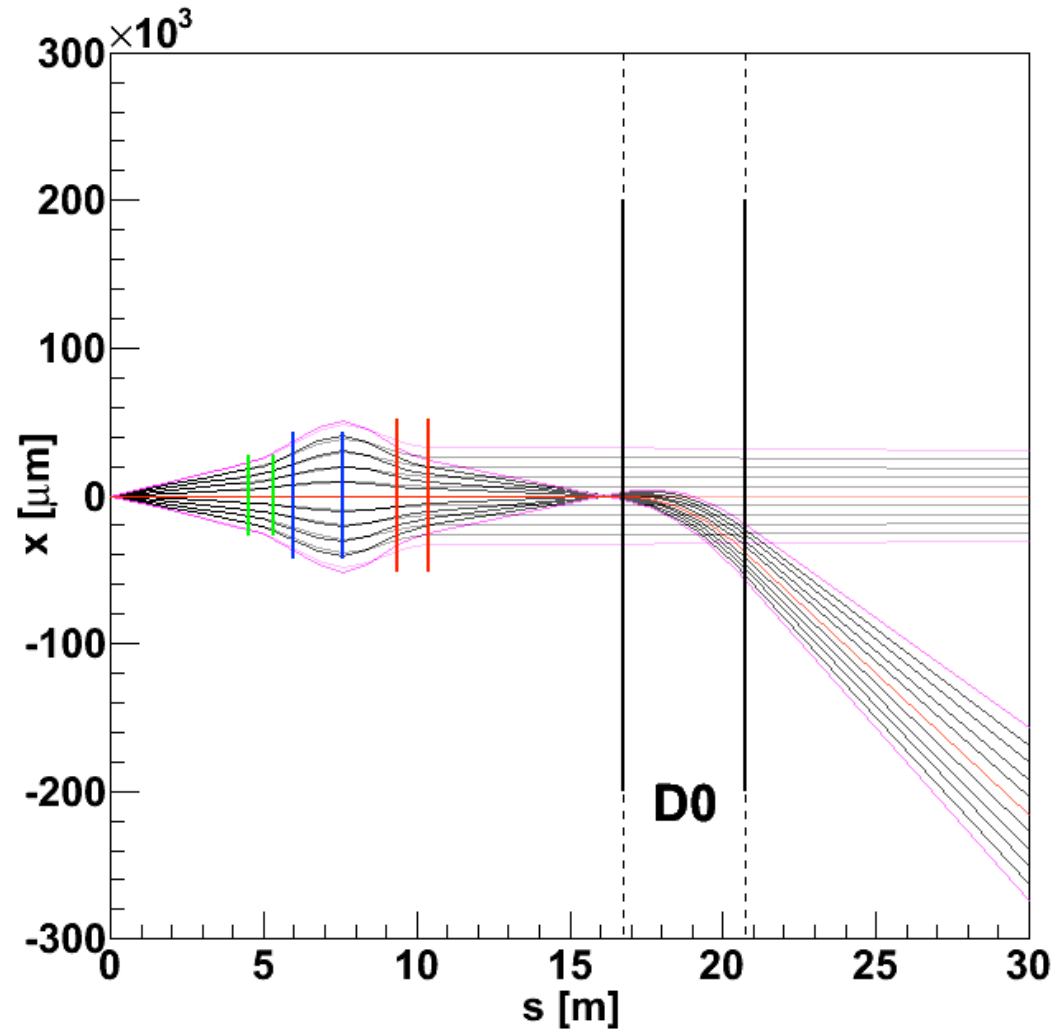
nominal proton track (-5mrad - +5mrad)



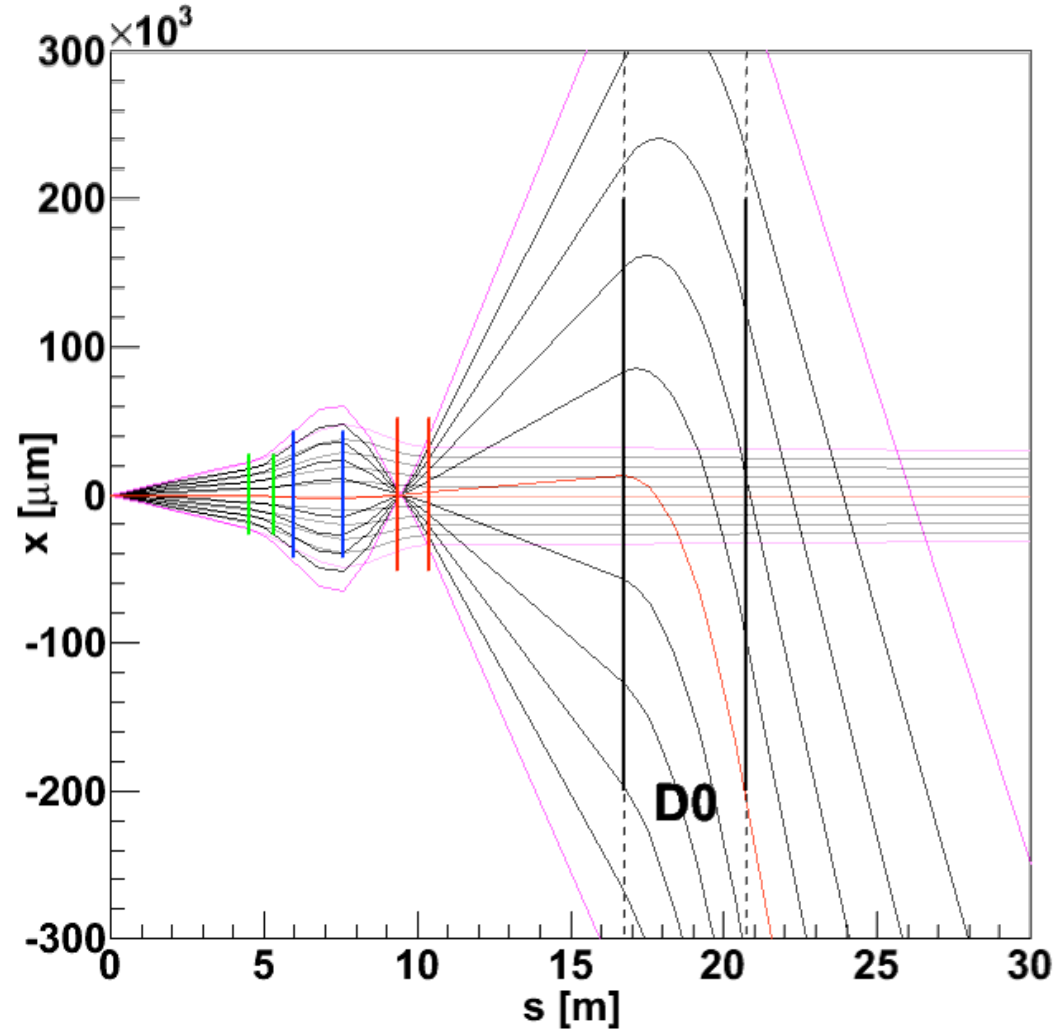
proton track with $\Delta p = 10\%$ (-5mrad - +5mrad)



proton track with $\Delta p = 20\%$ (-5mrad - +5mrad)

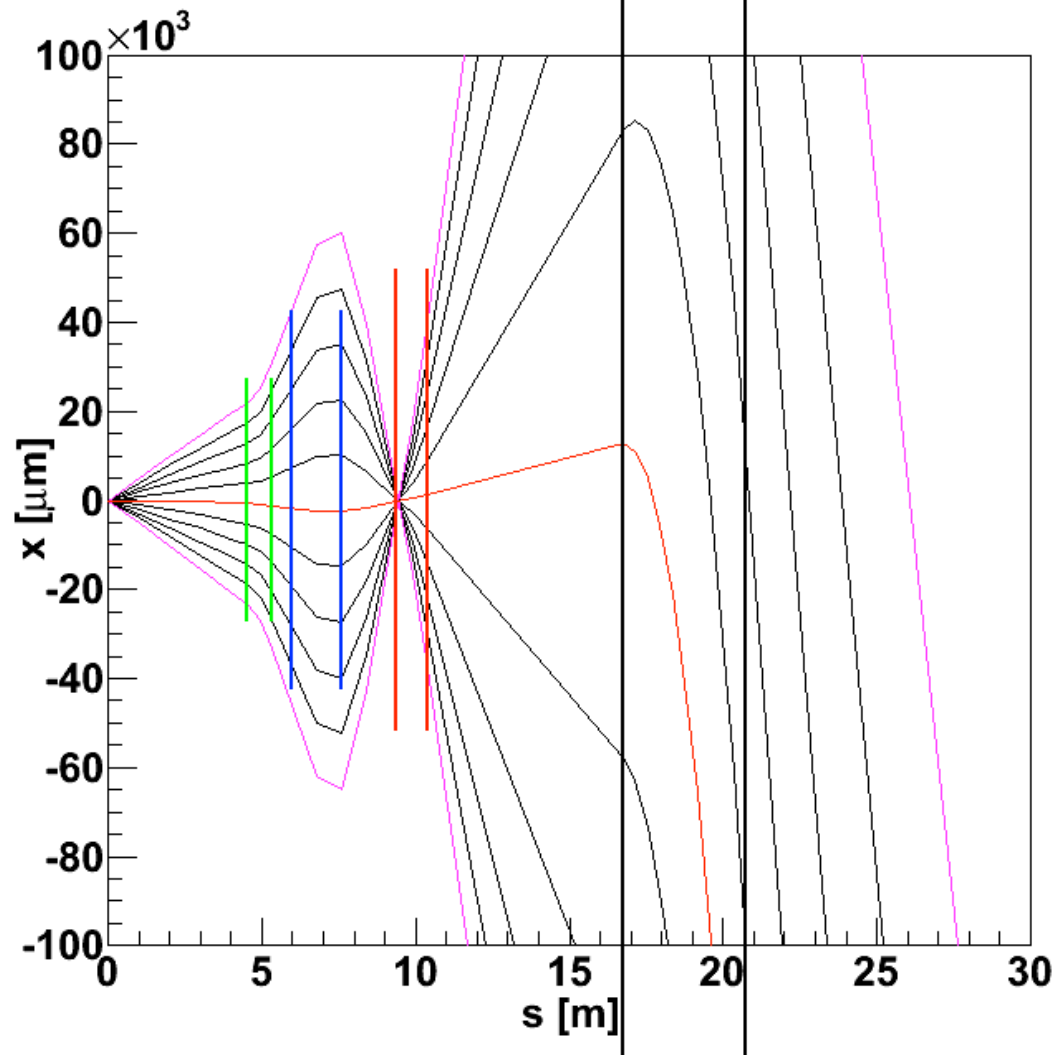


proton track with $\Delta p = 40\%$ (-5mrad - +5mrad)



- $\Delta p = 40\%$: Equivalent of fragmenting proton from Au in Au optics (79/197)

proton track with $\Delta p = 40\%$ (-5mrad - +5mrad)
ZOOMED



- $\Delta p = 40\%$: Equivalent of fragmenting proton from Au in Au optics (79/197)

