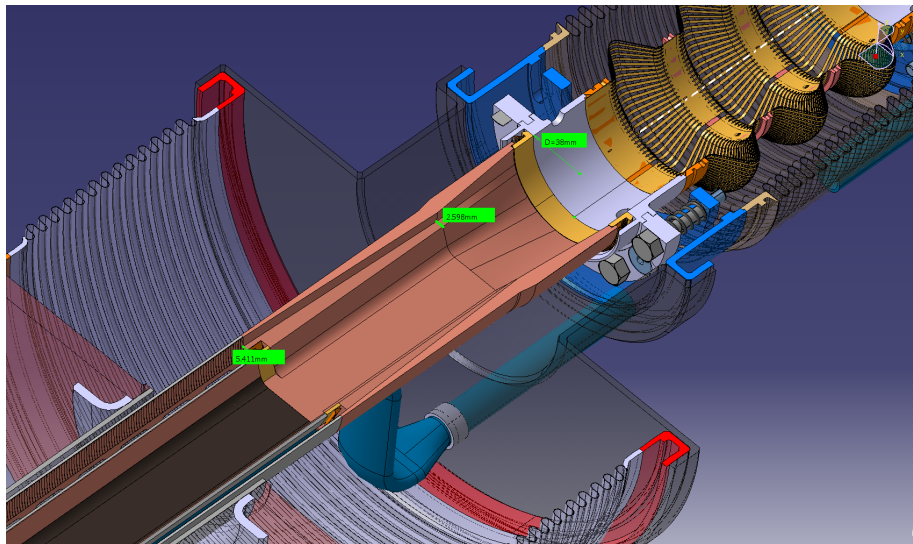


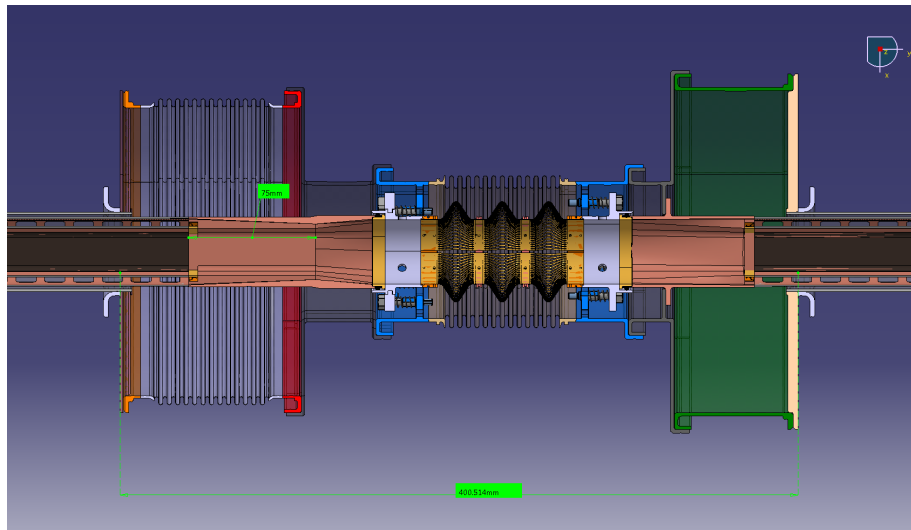
Implementation of SR absorbers in the aperture model

R. Martin

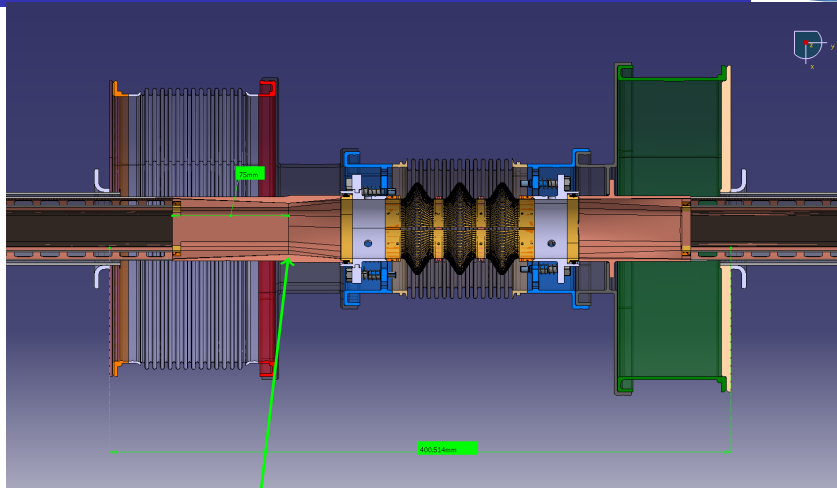
FCC collimation design meeting #22
March 18, 2019



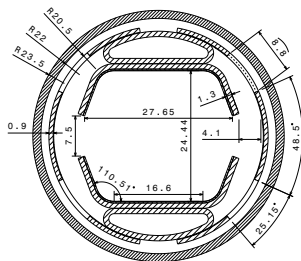
C. Garion, I. Bellafont et al.



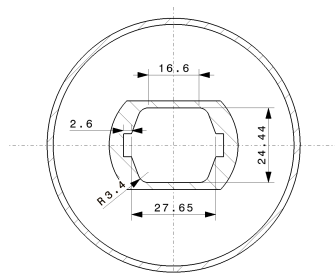
C. Garion, I. Bellafont et al.



- Implemented as MARKER at narrowest position
- \Rightarrow also largest sagitta before inner chamber size increases



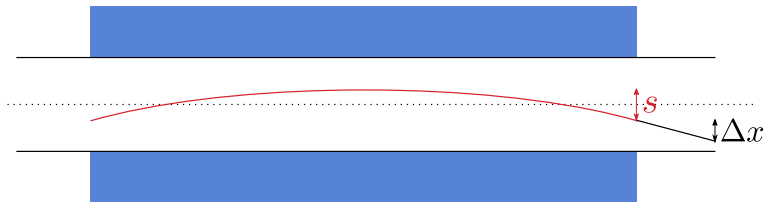
Beam screen I. Bellafont, C. Garion et al.



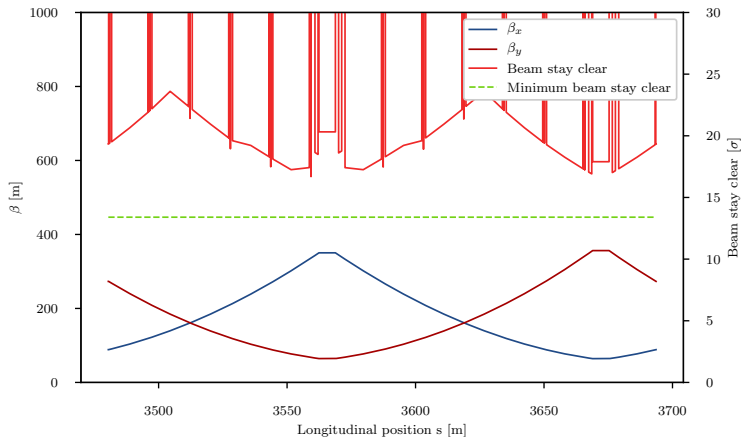
Narrowest SR absorber aperture I. Bellafont, C. Garion et al.

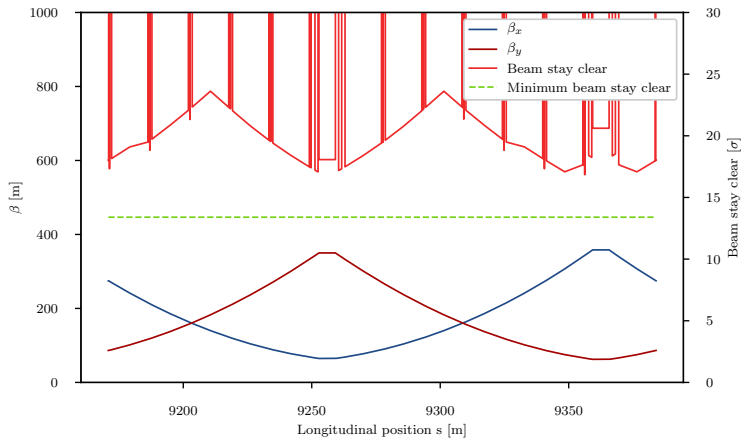
- Same beam chamber size as beam screen
- Smaller slit depth
- Slit depth in MAD-X model was already limited \Rightarrow almost no difference

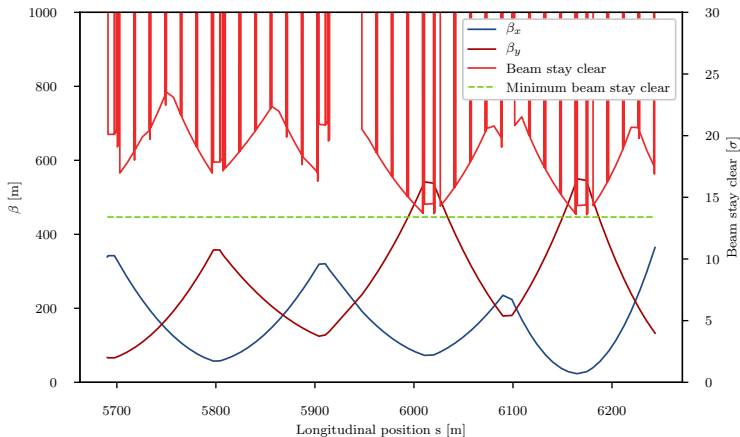
- Sagitta previously included a little margin for beam screen beyond magnet but not much
- SR absorber bottle neck about 66.5 cm behind magnet
- Sagitta model: only “dipole sagitta” centered in dipole



- Best in terms of field errors and dynamic aperture, worst in terms of mechanical aperture
- $\frac{s}{2} + \Delta x = 1.63 \text{ mm}$







$$\text{BSC} > 13.5\sigma$$

- Sagitta increased significantly in SR absorbers, but...
- “New” beam stay clear at injection: 13.4σ (was 15.5σ when we gave “worst case ellipses” to vacuum group)
- Better field quality in arc dipoles \Rightarrow smaller arc β function at injection