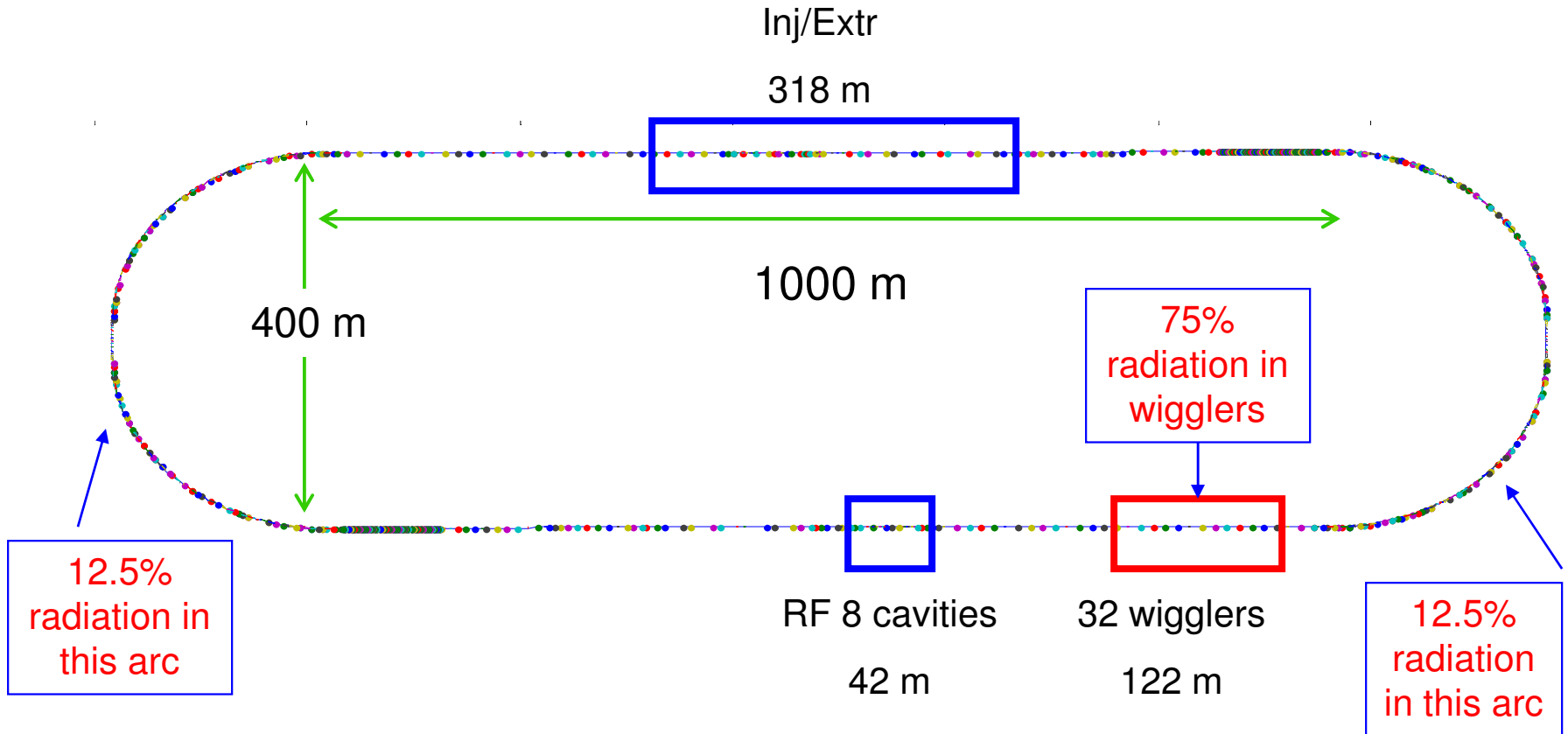




SB2009 - DSB3 LATTICE

STRSECI: INJ/EXTRACTION



STRSECR: RF AND WIGGLERS

DR Parameters

	RDR	SB2009
	DCO2	DSB3
Energy (GeV)	5	5
Circumference (m)	6476	3238
Bunch number	2610 - 5265	2610 - 1305
N particles/bunch	2x10e10	2x10e10
Damping time tx (ms)	21	24
Emittance ex (nm)	0.48	0.53
Emittance ey (pm)	2	2
Momentum compaction	1.7x10 ⁻⁴	1.3x10 ⁻⁴
Energy loss/turn (MeV)	10.3	4.4
Energy spread	0,0013	0,0012
Bunch length (mm)	6	6
RF Voltage (MV)	21	7,5
RF frequency (MHz)	650	650
B wiggler (T)	1,6	1,6
Lwig total	216	78
Number of wigglers	88	32

1/2 circumference

<1/2 RF cavities

~1/3 wigglers

DR

- Overview

- DR circumference 6.4 \Rightarrow 3.2 km
- N bunches 2600 \Rightarrow 1300
- Reducing circumference and number of bunches by keeping the same current keeps the same DR performance and reduces costs
- Technical work done for 6 km ring can be applied to 3 km, similar layout, similar straight sections

- Issues:

- Kickers
- Low emittance
- E-cloud 1300 bunches (6 ns)

Same as 6.4 km,
R&D in progress, CesrTA, ATF

- (12 ns option has a direct impact on luminosity for 3 km ring)
- Reevaluate fast ion
- E-cloud 2660 bunches (luminosity upgrade): more challenging, requires more simulation studies, further mitigation techniques, more expensive vacuum design, etc.