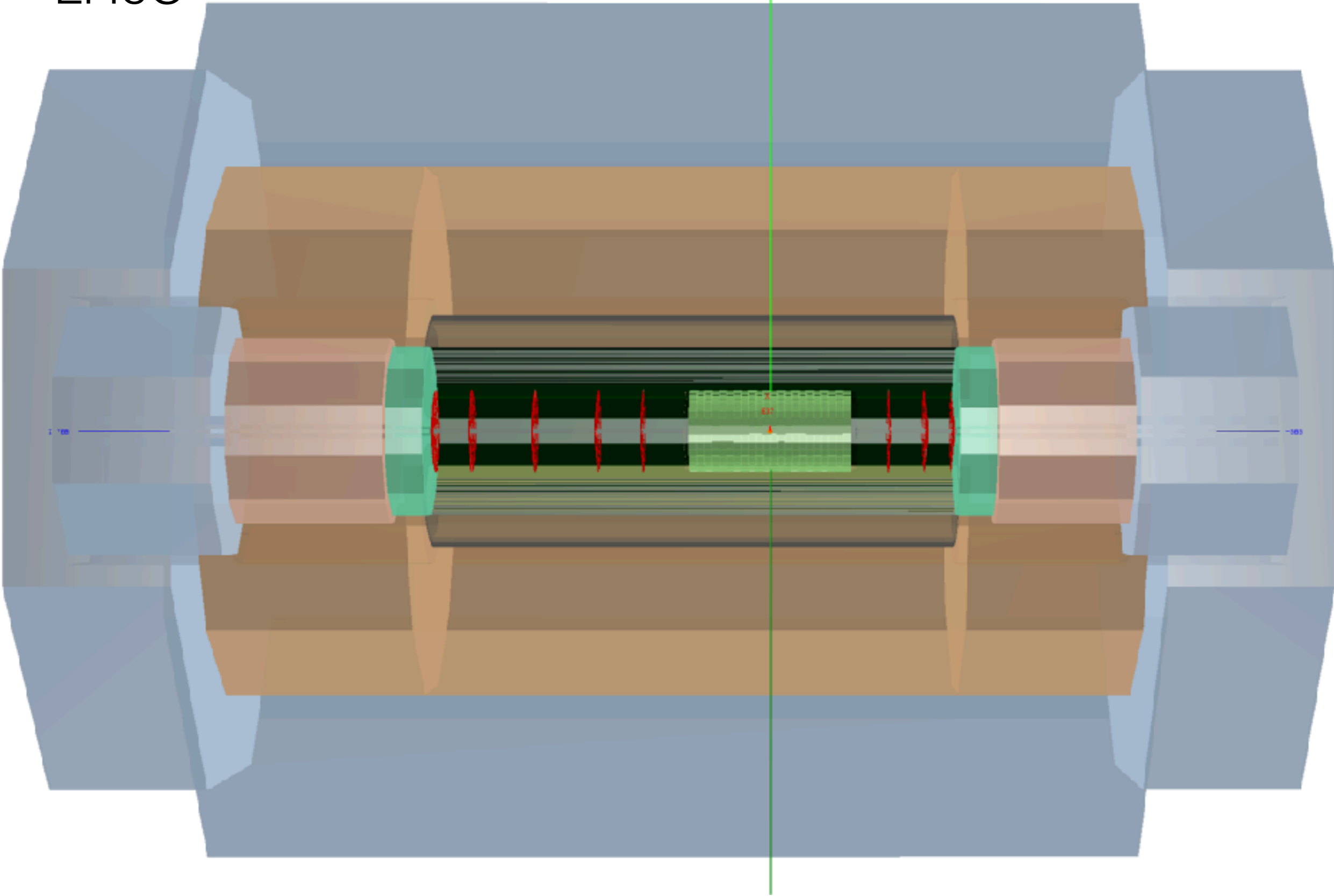
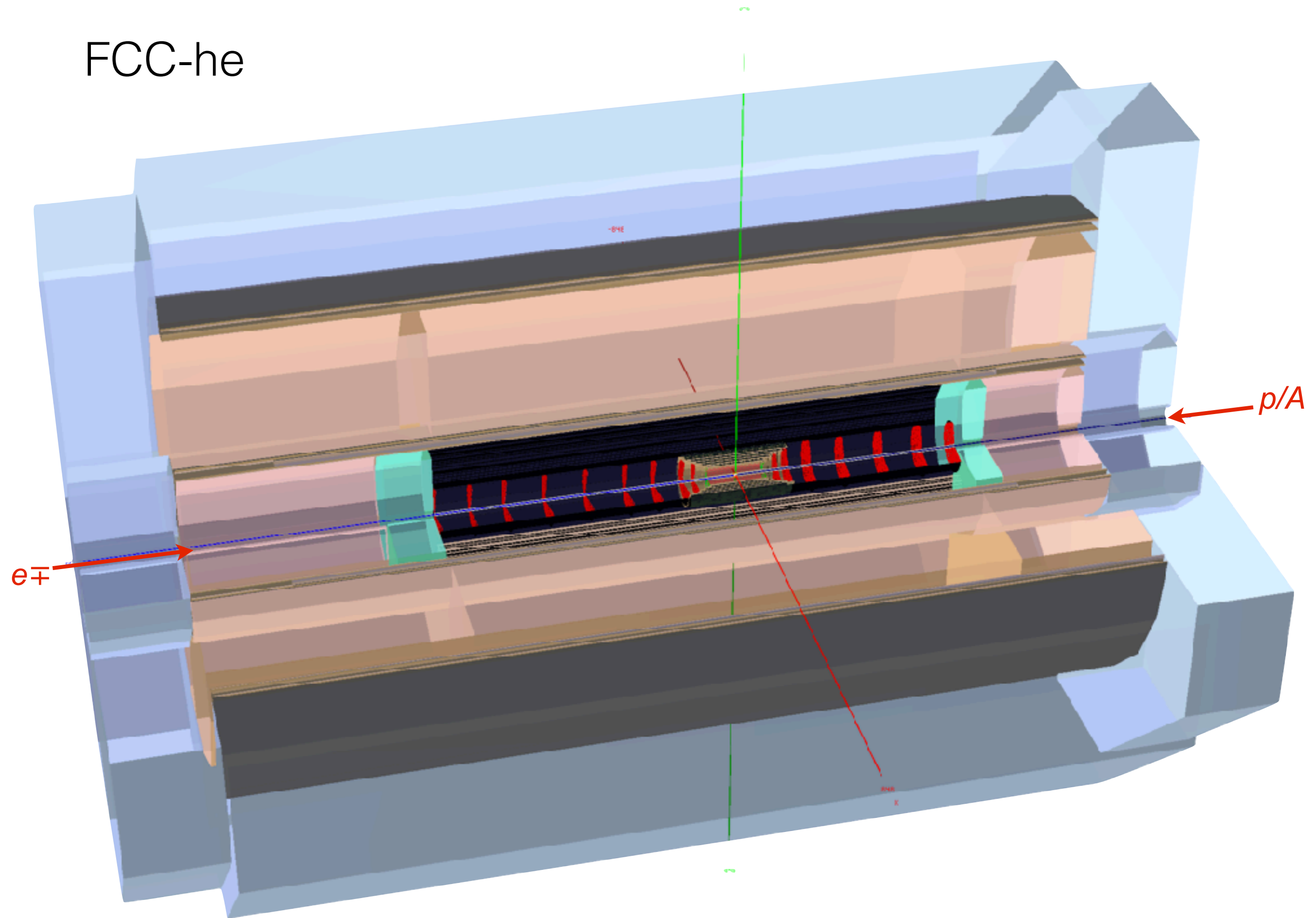
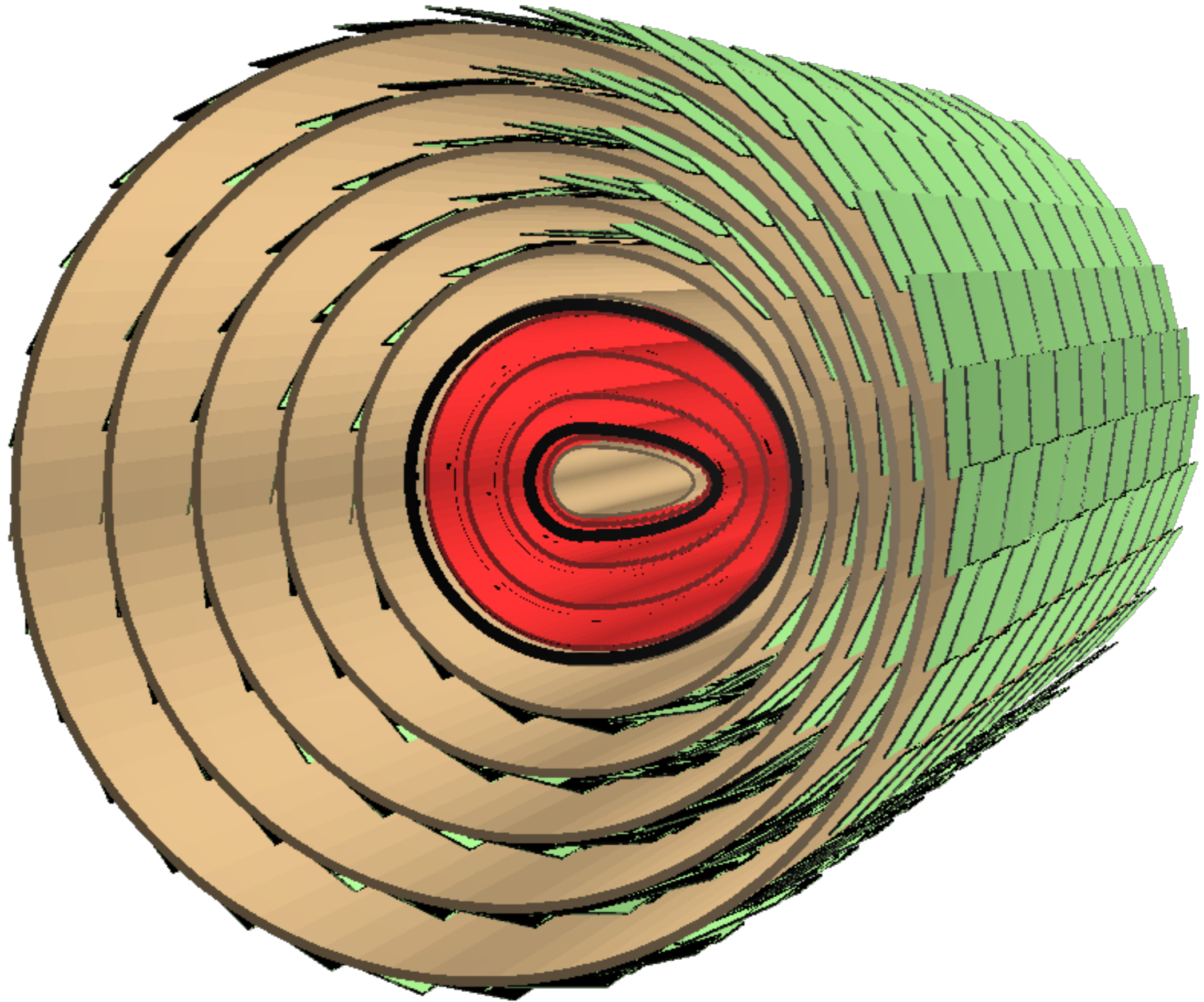


LHeC

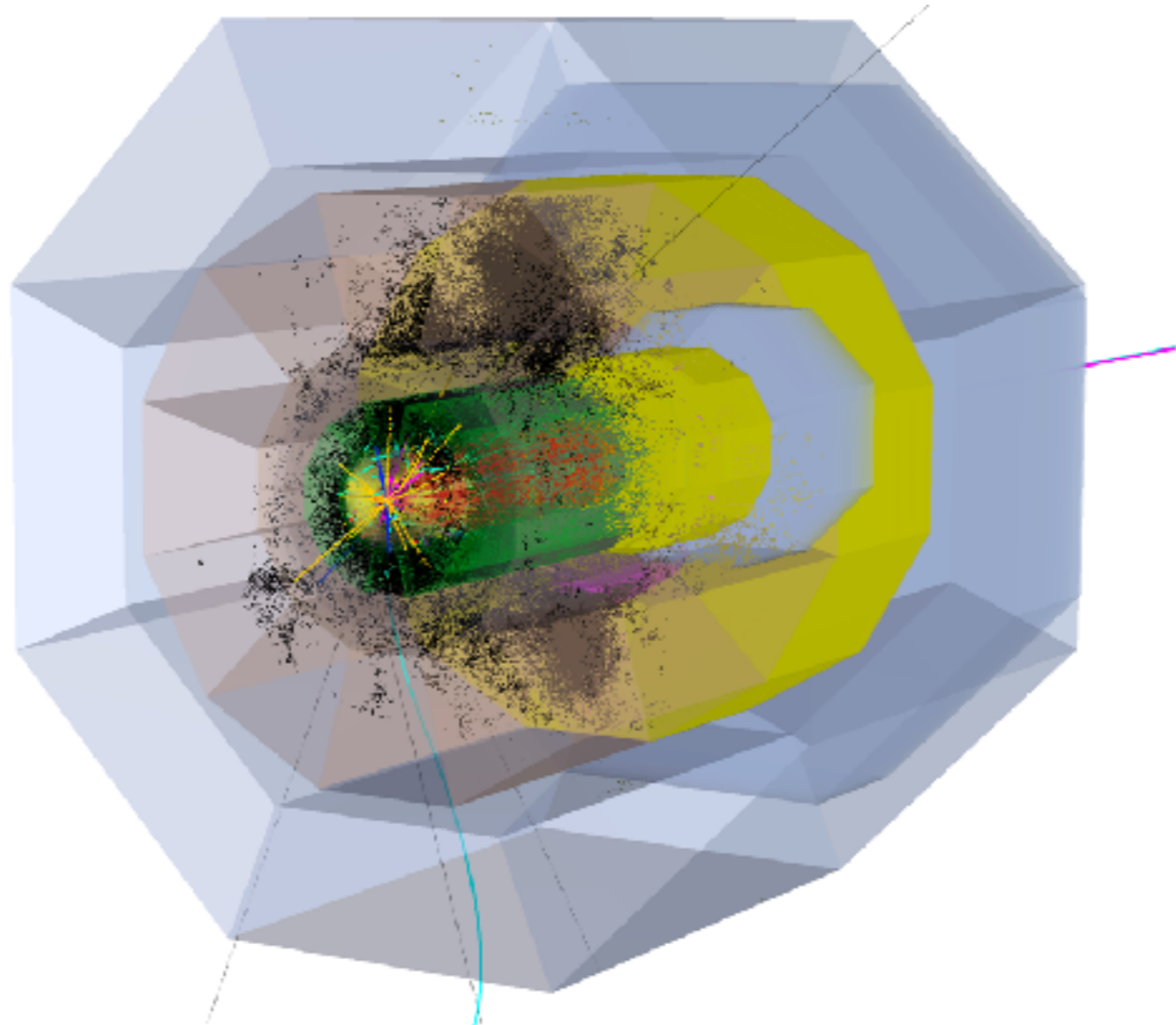
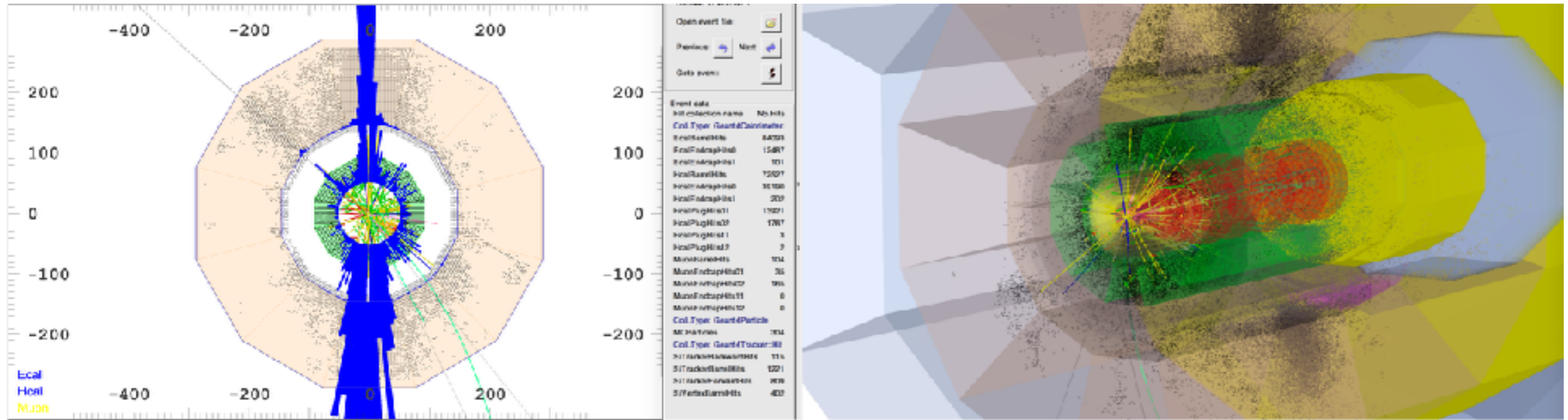


FCC-he





Simulation of Higgs->bb from LHeC ep



LHeC

Tracker	FST _{pix}	FST _{strix}	CFT _{pix}	CPT _{pix}	CST _{strix}	CBT _{pix}	BST _{strix}	BST _{pix}
#Wheels	5		2	—	—	2	3	
#Rings/Wheel	2 _{inner}	3 _{outer}	3/4	—	—	3/4	3 _{outer}	2 _{inner}
#Layers	—	—	—	4	5	—	—	—
$\theta_{min/max}$ [°]	0.7	3.8	3.0	5.1	24/155	177.8	173.1	178.7
$\eta_{max/min}$	5.1	3.4	3.6	±3.1	±1.4	-3.6	-2.8	-4.5
Pitch [μm]	30 x 30	37.5 x 1750	30 x 30	30 x 30	37.5 x 1750	30 x 30	37.5 x 1750	30 x 30
ReadOut-Pitch [μm]	30	75	30	30	75	30	75	30
pix- σ^{point} [μm]	≤14		≤14	≤14		≤14		≤14
strix- $\sigma^{r-\phi}$ [μm]		~5			~5		~5	
strix- σ^z [mm]		~5			~5		~5	
Vertexing- σ	$5\mu m \times 20\mu m / (p \times \sin^{3/2}\theta)$ solenoid and dipole field							
Tracking- σ [μm]	$\Delta(p_T/p_T^2) = 5 \times 10^{-5}$							
X_0 / layer [%]	0.3	0.8	0.3	0.3	0.8	0.3	0.8	0.3
Si _{pix/strix} [m^2]	6.9	9.5	2.8	5.4	33.7	2.8	5.7	4.1
Sum-Si [m^2]	70.9 double layers taken into account							
Calo	FHC _{SiW}	FEC _{SiW}	EMC _{SciPb/LAr}	HAC _{SciFe}		BEC _{SiPb}	BHC _{SiFe}	
$\theta_{min/max}$ [°]	0.61	0.68	8/166	14.2/160		178.7	178.9	
$\eta_{max/min}$	5.2	5.1	2.7/-2.1	2.1/-1.7		-4.5	-4.7	
R/O-Pitch [mm]	20 x 20	10 x 10				20 x 20	20 x 20	
$\sigma_E/E \approx$	0.4/ $\sqrt{E}+0.02$	0.1/ $\sqrt{E}+0.01$	0.09/ $\sqrt{E}+0.02$	0.4/ $\sqrt{E}+0.02$		0.1/ $\sqrt{E}+0.01$	0.4/ $\sqrt{E}+0.04$	
E-Flow	$\sigma_{E_{jet}}/E_{jet} = 0.03$ (at lower energies 25%/ \sqrt{E} ; sampling ~55 ; $\sigma_{jet} \sim 3\%$)							
Λ_I / X_0	$\Lambda_I \geq 12$	$X_0 \geq 25$	$X_0 \geq 25$	$\Lambda_I \geq 12$		$X_0 \geq 25$	$\Lambda_I \geq 10$	
Volume [m^3]	6.7	1.6	15.1	165		1.6	5.5	
Sum-Si [m^2]	195.5							

FCC-he

Tracker	FST _{pix}	FST _{strix}	CFT _{pix}	CPT _{pix}	CST _{strix}	CBT _{pix}	BST _{strix}	BST _{pix}
#Wheels	7		2	—	—	2	5	
#Rings/Wheel	2 _{inner}	3 _{outer}	3/4	—	—	3/4	3 _{outer}	2 _{inner}
#Layers	—	—	—	4	5	—	—	—
$\theta_{min/max}$ [°]	0.5	3.8	3.6	5.1	24/155	176.4	173.1	179.3
$\eta_{max/min}$	5.4	3.4	3.5	±3.1	±1.4	-3.5	-2.8	-5.2
Pitch [μm]	30 x 30	37.5 x 1750	30 x 30	30 x 30	37.5 x 1750	30 x 30	37.5 x 1750	30 x 30
ReadOut-Pitch [μm]	30	75	30	30	75	30	75	30
pix- σ^{point} [μm]	≤14		≤14	≤14		≤14		≤14
strix- $\sigma^{r-\phi}$ [μm]		~5			~5		~5	
strix- σ^z [mm]		~5			~5		~5	
Vertexing- σ	$5\mu m \times 20\mu m / (p \times \sin^{3/2}\theta)$ solenoid and dipole field							
Tracking- σ [μm]	$\Delta(p_T/p_T^2) = 5 \times 10^{-5}$							
X_0 per layer [%]	0.3	0.8	0.3	0.3	0.8	0.3	0.8	0.3
Si _{pix/strix} [m^2]	9.7	13.3	2.8	5.4	33.7	2.8	9.7	6.9
Sum-Si [m^2]	84.3 double layers taken into account							
Calo	FHC _{SiW}	FEC _{SiW}	EMC _{SciPb/LAr}		HAC _{SciFe}		BEC _{SiPb}	BHC _{SiFe}
$\theta_{min/max}$ [°]	0.3	0.4	5.6/173.4		8.6/167		179.4	179.6
$\eta_{max/min}$	6.0	5.6	3.0/-2.7		2.5/-2.2		-5.3	-5.6
R/O-Pitch [mm]	20 x 20	10 x 10					20 x 20	20 x 20
$\sigma_E/E \approx$	0.4/ $\sqrt{E}+0.02$	0.1/ $\sqrt{E}+0.01$	0.09/ $\sqrt{E}+0.02$		0.4/ $\sqrt{E}+0.02$		0.1/ $\sqrt{E}+0.01$	0.4/ $\sqrt{E}+0.04$
E-Flow	$\sigma_{E_{jet}}/E_{jet} = 0.03$ (at lower energies 25%/ \sqrt{E} ; sampling ~55 ; $\sigma_{jet} \sim 3\%$)							
Λ_I / X_0	$\Lambda_I \geq 12$	$X_0 \geq 28$	$X_0 \geq 28$		$\Lambda_I \geq 12$		$X_0 \geq 25$	$\Lambda_I \geq 10$
Volume [m^3]	13.2	3.1	28.8		407		1.98	7.0
Sum-Si [m^2]	461							