

CEPC LumiCal group meeting

Jiading Gong, Renjie Ma

Comparison

@92.3 GeV

```
CMS :92.29999999999997[GeV]
The total number of events : 10000000.0000000000000000
The total cross section : 2556.516055683488958
th1 :0.0100000000000000[Rad]
th2 :0.0800000000000000[Rad]
nevent1_cut1 : 4586137.0000000000000000 (th1 < theta < th2) && s'/s > 0.5
nevent1_cut2 : 4901580.0000000000000000 e+ or e- : r1 < r && |y| < y1 && s'/s > 0.5
nevent1_cut3 : 1173181.0000000000000000 (e-: r2 < r && |y| < y1) && cut2
nevent1_cut4 : 566455.0000000000000000 (e-: r2 < r && |y| < y1 && |y| > y2) && cut2
nevent1_cut5 : 1124598.0000000000000000 (e+: r2 < r && |y| < y1) && cut3
nevent1_cut6 : 540396.0000000000000000 (e+: r2 < r && |y| < y1 && |y| > y2) && cut4
Cross Section 1 : 1172.453287406410936[nb]
Cross Section 2 : 1253.096796821707585[nb]
Cross Section 3 : 299.925606272281129[nb]
Cross Section 4 : 144.815130232219076[nb]
Cross Section 5 : 287.505284318954011[nb]
Cross Section 6 : 138.153105042713463[nb]
Beam Lab : (16.501497538082106, 0.0000000000000000, 1000.0000000000000000)
```

evrun_10mrad-10m. log .010-.080 Rad BeamPipe cut 20mRad 20mm

@z=1m

CMS P2,Q2 in theta cut		LAB one electron (P2)		LAB both electrons (P2,Q2)	
BARE1 (10M evt)		off. bpipe	off. bpipe, Xbar	off. bpipe	off. bpipe, Xbar
Nevents	4586137 N(Acc1)H1 101	847495 N(Acc1, P2offbp)	536474 N(Acc1 P2offbp, xbar)	549046 N(Acc1 offbp)	512475 N(Acc1 bp, xbar)
Xsec (nb)	1172. 45 329 (f.output)	216. 66 35	137. 1504	140. 36 45	131. 0151

Ax2Lab0 in Acceptance 10<y<80mm, 10<Q<80mRad both pipe

Ax2Lab1= Ax2Lab0 and S'/S>0.5

UAacc Acms1: (Th1<Qp2<Th2.and. Th1<Qq2<Th2)

N(Ap2q2Lab1): (Rp2<80.and.Rq2<80) → (Ap2Lab1.or.Aq2lab1)

Ax2Lab0 in Acceptance 10<y<80mm, 10<Q<80mRad both pipe

Ax2Lab1= Ax2Lab0 and S'/S>0.5

UAacc Acms1: (Th1<Qp2<Th2.and. Th1<Qq2<Th2)

N(Ap2q2Lab1): (Rp2<80.and.Rq2<80) → (Ap2Lab1.or.Aq2lab1)

CMS Th1< P2,Q2 <Th2		LAB P2 Q2<Th2	LAB one electron Ap2Lab1 (P2)	LAB both Ap2Lab1 & Aq2Lab1 (P2,Q2)	
BARE1 (10M evt)		N(Ap2q2Lab1)	P2off. bpip e	off. bpipe, Xbar	off. bpipe, Xbar
Nevents	4586128 N(Acms1)H10 01	4762656 N(Ap2q2Lab1)H10 11	849590 Ap2Lab1 P2offbp	537702 Ap2Lab1 P2offbp, xbar	55049 Ap2, q2Lab1 1 offbp
Xsec (nb)	1172. 45099	1217. 5807	217. 19 90	137. 464 4	140. 7 357

evhbk25+x#diam H79 226604 → 1172.45329/4586137*347856 = 88.93 nb

Comparison

@92.3 GeV

```
CMS :92.29999999999997[GeV]
The total number of events : 10000000.0000000000000000
The total cross section : 2556.516055683488958
th1 :0.0100000000000000[Rad]
th2 :0.0800000000000000[Rad]
nevent1_cut1 : 4586137.0000000000000000 (th1 < theta < th2) && s'/s > 0.5
nevent1_cut2 : 4901580.0000000000000000 e+ or e- : r1 < r && |y| < y1 && s'/s > 0.5
nevent1_cut3 : 736812.0000000000000000 (e-: r2 < r && |y| < y1 && cut2
nevent1_cut4 : 348456.0000000000000000 (e-: r2 < r && |y| < y1 && |y| > y2) && cut2
nevent1_cut5 : 703785.0000000000000000 (e+: r2 < r && |y| < y1) && cut3
nevent1_cut6 : 330539.0000000000000000 (e+: r2 < r && |y| < y1 && |y| > y2) && cut4
Cross Section 1 : 1172.453287406410936[nb]
Cross Section 2 : 1253.096796821707585[nb]
Cross Section 3 : 188.367170802026294[nb]
Cross Section 4 : 89.083335869924582[nb]
Cross Section 5 : 179.923765224920430[nb]
Cross Section 6 : 84.502826052956465[nb]
Beam_Lab : (16.501497538082106, 0.0000000000000000, 1000.0000000000000000)
```

evrun_10mrاد-10m. log .010-.080 Rad BeamPipe cut 25mRad 25mm
@z=1m

CMS <u>P2,Q2</u> in theta cut↵		LAB one electron (P2)↵		LAB both electrons (P2,Q2) ↵	
BARE1 (10M evt)↵		off.bpipe↵	off.bpipe, Xbar↵	off.bpipe↵	off.bpipe, Xbar↵
Nevents↵	4586137↵ N(Acc1)H1 101↵	520141↵ N(Acc1, P2offbp)↵	320610↵ N(Acc1 P2offbp, xbar)↵	334524↵ N(Acc1 offbp)↵	304815↵ N(Acc1 bp, xbar)↵
Xsec(nb)↵	1172. 45 329↵ (f.output)↵	132. 97 49↵	81. 9645↵	85. 521 6↵	77. 9264↵

Ax2Lab0 in Acceptance 10<y<80mm, 10<Q<80mRad both pipe

Ax2Lab1= Ax2Lab0 and S'/S>0.5

UAacc Acms1: (Th1<Qp2<Th2.and. Th1<Qq2<Th2)

N(Ap2q2Lab1): (Rp2<80.and.Rq2<80) → (Ap2Lab1.or.Aq2lab1)

CMS Th1< P2,Q2 <Th2↵		LAB P2 Q2<Th2↵	LAB one electron Ap2Lab1 (P2) ↵		LAB both Ap2Lab1 & Aq2Lab1 (P2, Q2) ↵	
BARE1 (10M evt)↵		N(Ap2q2Lab1)↵	P2off. bpip e↵	off. bpipe, Xbar↵	off. bpipe↵	off. b pipe, Xbar↵
Nevents↵	4586128↵ N(Acms1)H10 01↵	4762656↵ N(Ap2q2lab1)H10 11↵	521877↵ Ap2Lab1 P2offbp↵	321521↵ Ap2Lab1 P2offbp, xba r↵	33596 4↵ Ap2, q 2Lab1 offbp↵	30542 2↵ Ap2, q2Lab 1 offbp bp, xbar↵
Xsec(nb))↵	1172. 45099↵	1217. 5807↵	133. 41 87↵	82. 1974↵	85. 88 97↵	78. 08 16↵

evhbk25+x#diam H79 226604 → 1172.45329/4586137*347856 = 88.93 nb

Comparison

@92.3 GeV

```
CMS :92.29999999999997[GeV]
The total number of events : 10000000.0000000000000000
The total cross section : 2557.134791716785912
th1 :0.0100000000000000[Rad]
th2 :0.1200000000000000[Rad]
nevent1_cut1 : 4622143.0000000000000000 (th1 < theta < th2) && s'/s > 0.5
nevent1_cut2 : 4915152.0000000000000000 e+ or e- : r1 < r && |y| < y1 && s'/s > 0.5
nevent1_cut3 : 758983.0000000000000000 (e-: r2 < r && |y| < y1) && cut2
nevent1_cut4 : 370224.0000000000000000 (e-: r2 < r && |y| < y1 && |y| > y2) && cut2
nevent1_cut5 : 727149.0000000000000000 (e+: r2 < r && |y| < y1) && cut3
nevent1_cut6 : 354092.0000000000000000 (e+: r2 < r && |y| < y1 && |y| > y2) && cut4
Cross Section 1 : 1181.944267759020022[nb]
Cross Section 2 : 1256.870618577634332[nb]
Cross Section 3 : 194.082183562158150[nb]
Cross Section 4 : 94.671267112855531[nb]
Cross Section 5 : 185.941800666206916[nb]
Cross Section 6 : 90.546097266858027[nb]
Beam_Lab : (16.501497538082106, 0.0000000000000000, 1000.0000000000000000)
```

evrun_10-120mrad.log .010-.120 Rad BeamPipe cut 25mRad 25mm
@z=1m

CMS P2,Q2 in theta cut		LAB one electron (P2)		LAB both electrons (P2, Q2)	
BARE1 (10M evt)		off. bpipe	off. bpipe, Xbar	off. bpipe	off. bpipe, Xbar
Nevents	4622143 N(Acc1)H1	564076 N(Acc1,	356175 N(Acc1	378053 N(Acc1	340127 N(Acc1

	101	P2offbp	P2offbp, xbar	offbp	bp, xbar
Xsec(nb)	1181.94 427 (f_output)	144.24 18	91.0787	96.673 2	86.975

Ax2Lab0 in Acceptance 10<y<80mm, 10<Q<80mRad both pipe
Ax2Lab1= Ax2Lab0 and S'/S>0.5
UAacc Acms1 : (Th1<Qp2<Th2 .and. Th1<Qq2<Th2)
N(Ap2q2Lab1): (Rp2<80.and.Rq2<80) -> (Ap2Lab1.or.Aq2lab1)

CMS Th1< P2,Q2 <Th2		LAB P2 Q2<Th2	LAB one electron Ap2Lab1 (P2)		LAB both Ap2Lab1 & Aq2Lab1 (P2, Q2)	
BARE1 (10M evt)		N(Ap2q2Lab1)	P2off. bpip e	off. bpip, Xbar	off. bpip	off. bpip, Xbar
Nevents	4622126 N(Acms1)H10 01	4798264 N(Ap2q2Lab1)H10 11	565421 Ap2Lab1 P2offbp	357178 Ap2Lab1 P2offbp, xbar	37909 4 Ap2, q 2Lab1 offbp	34092 9 Ap2, q2Lab 1 offbp bp, xbar
Xsec(nb)	1181.93992	1226.9808	144.58 58	91.3352	96.93 94	87.18 01

evhbk25+x#diam H79 226604 -> 1181.94427/4586126*347422 = 89.54 nb

Comparison

@92.3 GeV

	CMS generated Th1, Th2 (mRad)	e^- .or. e^+ to pipe centers (mm)	Single e^- in (mm) (mm)		Both e^- .and. e^+ in (mm) (mm)	
σ (nb)	10 to 80 1172.45	$10 < r, y < 80$ 1217.45	$r > 20$ 217.20	.and. $ y > 20$ 137.46	$r > 20$ 140.74	.and. $ y > 20$ 131.21
σ (nb)	10 to 80 1172.45	$10 < r, y < 80$ 1217.45	$r > 25$ 133.42	.and. $ y > 25$ 82.20	$r > 25$ 85.89	.and. $ y > 25$ 78.08
σ (nb)	10 to 120 1181.94	$10 < r, y < 120$ 1226.98	$r > 25$ 144.59	.and. $ y > 25$ 91.34	$r > 25$ 96.94	.and. $ y > 25$ 87.18

	CMS generated Th1, Th2(mrad)	e^- .or. e^+ to pipe centers (mm)	Single e^- in (mm)		Both e^- .and. e^+ in (mm)	
σ (nb)	10 to 80 1172.45	$10 < r, y < 80$ 1253.10	$20 < r$ 299.93	.and. $ y > 20$ 144.82	$20 < r$ 287.51	.and. $ y > 20$ 138.15
σ (nb)	10 to 80 1172.45	$10 < r, y < 80$ 1253.10	$25 < r$ 188.37	.and. $ y > 25$ 89.08	$25 < r$ 179.92	.and. $ y > 25$ 84.50
σ (nb)	10 to 120 1181.94	$10 < r, y < 120$ 1256.87	$25 < r$ 194.08	.and. $ y > 25$ 94.67	$25 < r$ 185.94	.and. $ y > 25$ 90.55

Backup

	BHLUMI(trial0)				BHLUMI(trial1)			
<i>Events</i>	1e06				1e06			
<i>CMS (GeV)</i>	92.3				92.3			
<i>Infrared cut</i>	1e-04				1e-04			
<i>thmin (Rad)</i>	0.007				0.007			
<i>thmax (Rad)</i>	1.571				1.571			
<i>The total cross section (nb)</i>	2560.769				2560.769			
<i>th1 (Rad)</i>	0.007	0.010	0.010	0.010	0.007	0.010	0.010	0.010
<i>th2 (Rad)</i>	1.571	0.785	1.571	0.100	1.571	0.785	1.571	0.100
<i>cut₁ (nb)</i>	2552.234	1256.854	1258.024	1233.843	2552.234	1256.854	1258.024	1233.843
<i>cut₂ (nb)</i>	2428.167	1191.649	1191.938	1178.932	2428.167	1191.649	1191.938	1178.932
<i>cut₃ (nb)</i>	1500.365	716.201	716.375	707.538	1500.365	716.201	716.375	707.538

Backup

	BHLUMI(trial0)				BHLUMI(trial1)			
<i>Events</i>	1e06				1e06			
<i>CMS (GeV)</i>	92.3				92.3			
<i>Infrared cut</i>	1e-04				1e-04			
<i>thmin (Rad)</i>	0.007				0.007			
<i>thmax (Rad)</i>	1.571				1.571			
<i>The total cross section (nb)</i>	2560.769				2560.769			
<i>th1 (Rad)</i>	0.007	0.010	0.010	0.010	0.007	0.010	0.010	0.010
<i>th2 (Rad)</i>	1.571	0.785	1.571	0.100	1.571	0.785	1.571	0.100
<i>cut₁ (nb)</i>	2552.234	1256.854	1258.024	1233.843	2552.234	1256.854	1258.024	1233.843
<i>cut₂ (nb)</i>	2428.167	1191.649	1191.938	1178.932	2428.167	1191.649	1191.938	1178.932
<i>cut₃ (nb)</i>	1500.365	716.201	716.375	707.538	1500.365	716.201	716.375	707.538

Backup

	BHLUMI(trial0)				BHLUMI(trial1)			
<i>Events</i>	1e06				1e06			
<i>CMS (GeV)</i>	92.3				92.3			
<i>Infrared cut</i>	1e-04				1e-04			
<i>thmin (Rad)</i>	0.007				0.007			
<i>thmax (Rad)</i>	1.571				1.571			
<i>The total cross section (nb)</i>	2560.769				2560.769			
<i>th1 (Rad)</i>	0.007	0.010	0.010	0.010	0.007	0.010	0.010	0.010
<i>th2 (Rad)</i>	1.571	0.785	1.571	0.100	1.571	0.785	1.571	0.100
<i>cut₁ (nb)</i>	2552.234	1256.854	1258.024	1233.843	2552.234	1256.854	1258.024	1233.843
<i>cut₂ (nb)</i>	2428.167	1191.649	1191.938	1178.932	2428.167	1191.649	1191.938	1178.932
<i>cut₃ (nb)</i>	1500.365	716.201	716.375	707.538	1500.365	716.201	716.375	707.538

Backup

	BHLUMI(trial0)				ReneSANCe(trial0)				Difference			
<i>Events</i>	1e06				1e06							
<i>CMS (GeV)</i>	92.3				92.3							
<i>Infrared cut</i>	1e-04				1e-04							
<i>thmin (Rad)</i>	0.007				0.007							
<i>thmax (Rad)</i>	1.571				(1.571)							
<i>The total cross section (nb)</i>	2560.769				2560.420				-0.0136%			
<i>th1 (Rad)</i>	0.007	0.010	0.010	0.010	0.007	0.010	0.010	0.010	0.007	0.010	0.010	0.010
<i>th2 (Rad)</i>	1.571	1.571	0.785	0.100	1.571	1.571	0.785	0.100	1.571	1.571	1.571	0.100
<i>cut₁ (nb)</i>	2552.234	1258.024	1256.854	1233.843	2558.605	1311.708	1310.444	1281.188	0.25%	4.27%	4.26%	3.84%
<i>cut₂ (nb)</i>	2428.167	1191.938	1191.649	1178.932	2448.968	1255.031	1254.427	1234.409	0.86%	5.29%	5.27%	4.71%
<i>cut₃ (nb)</i>	1500.365	716.375	716.201	707.538	1290.861	655.736	655.178	639.060	-13.96%	-8.465%	-8.52%	-9.68%

Backup

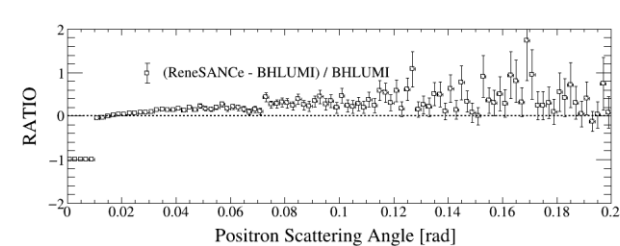
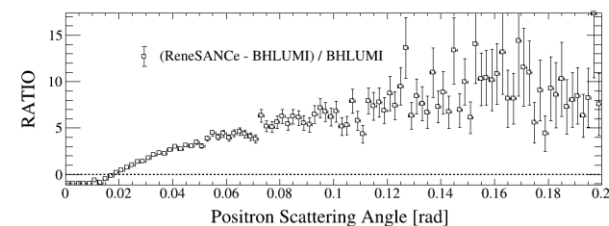
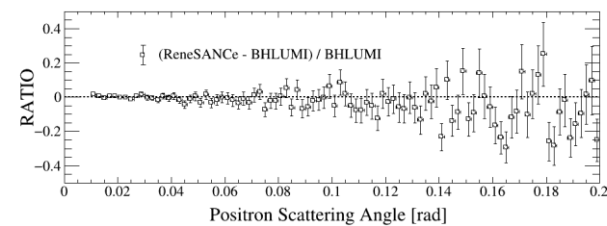
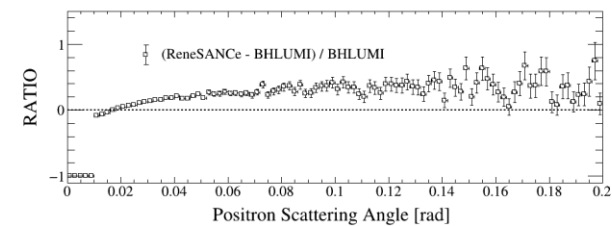
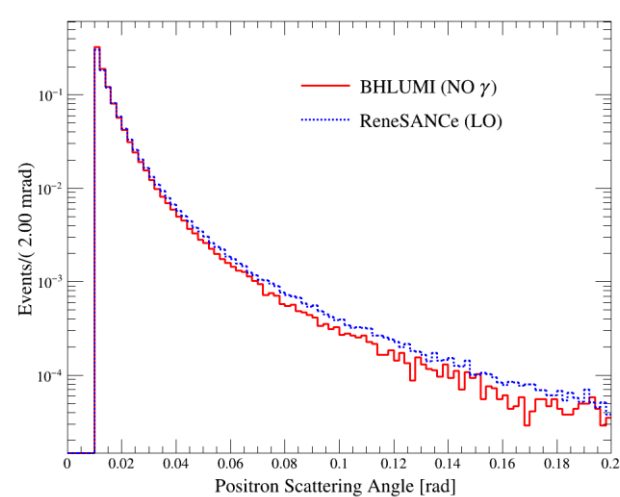
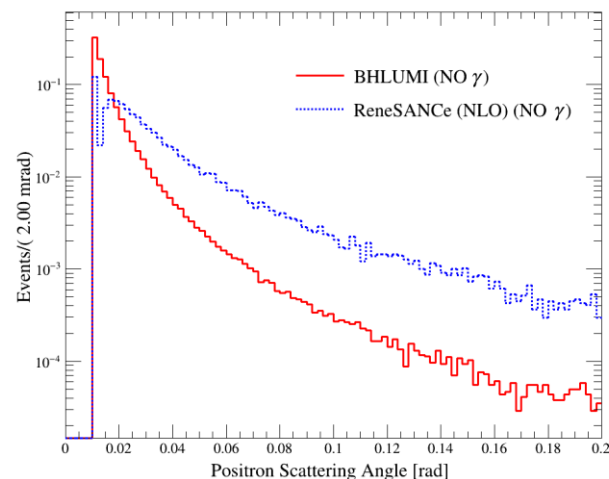
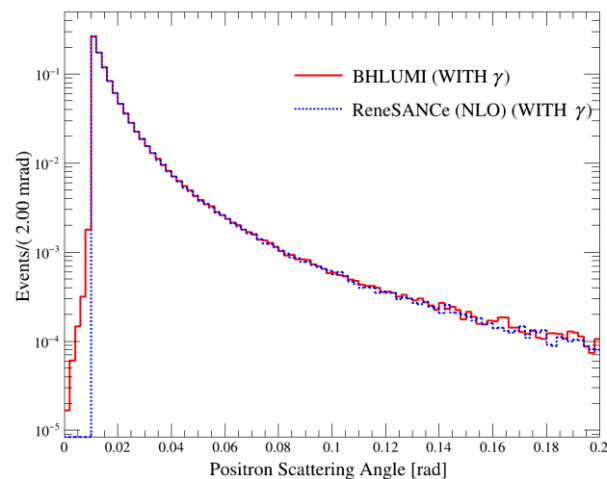
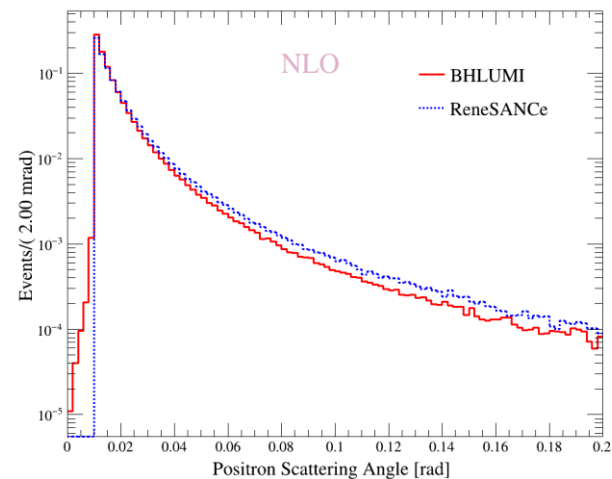
	BHLUMI(trial2)				ReneSANCe(trial2)				Difference			
<i>Events</i>	1e06				1e06							
<i>CMS (GeV)</i>	92.3				92.3							
<i>Infrared cut</i>	1e-04				1e-04							
<i>thmin (Rad)</i>	0.025				0.025							
<i>thmax (Rad)</i>	1.571				(1.571)							
<i>The total cross section (nb)</i>	203.253				203.671				-0.206%			
<i>th1 (Rad)</i>	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
<i>th2 (Rad)</i>	1.571	0.785	0.100	0.080	1.571	0.785	0.100	0.080	1.571	0.785	0.100	0.080
<i>cut₁ (nb)</i>	202.388	201.797	184.863	176.465	202.584	201.724	183.122	173.889	0.0968%	-0.0362%	-0.942%	-1.46%
<i>cut₂ (nb)</i>	190.675	190.427	177.904	170.622	194.713	194.102	178.487	169.987	2.11%	1.93%	0.328%	-0.372%
<i>cut₃ (nb)</i>	107.036	106.890	99.351	95.148	109.368	108.877	97.665	92.062	2.18%	1.86%	-1.70%	-3.24%

Backup

	BHLUMI(trial3)				ReneSANCe(trial3)				Difference			
<i>Events</i>	1e06				1e06							
<i>CMS (GeV)</i>	92.3				92.3							
<i>Infrared cut</i>	1e-04				1e-04							
<i>thmin (Rad)</i>	0.010				0.010							
<i>thmax (Rad)</i>	1.571				(1.571)							
<i>The total cross section (nb)</i>	1259.280				1259.361				-0.00643%			
<i>th1 (Rad)</i>	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
<i>th2 (Rad)</i>	1.571	0.785	0.100	0.080	1.571	0.785	0.100	0.080	1.571	0.785	0.100	0.080
<i>cut₁ (nb)</i>	1254.889	1253.802	1231.169	1221.183	1257.831	1256.441	1228.925	1216.130	0.234%	0.210%	-0.182%	-0.414%
<i>cut₂ (nb)</i>	1190.680	1190.410	1177.849	1170.784	1203.834	1203.078	1184.031	1173.697	1.105%	1.064%	-0.525%	0.249%
<i>cut₃ (nb)</i>	716.413	716.243	707.637	702.840	629.589	628.934	613.512	605.743	-12.11%	-12.19%	-13.30%	-13.81%

Backup

Trial3 : $\theta_{\min} = 0.01\text{rad}$, $\theta_{\max} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



BHLUMI : $1\text{e}+06$
ReneSANCe : $1\text{e}+06$

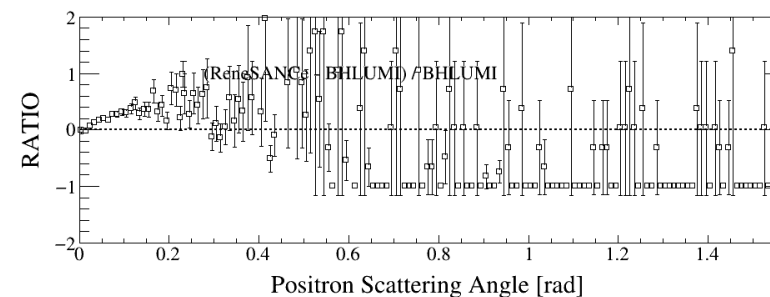
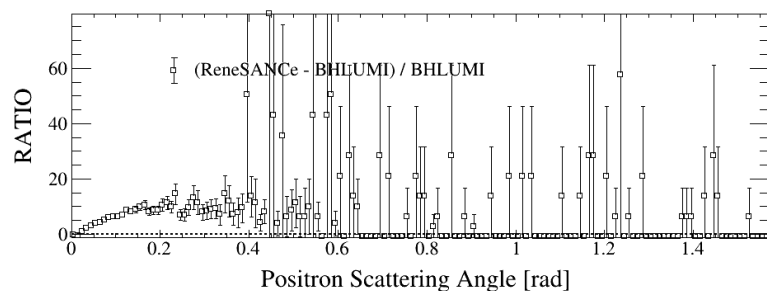
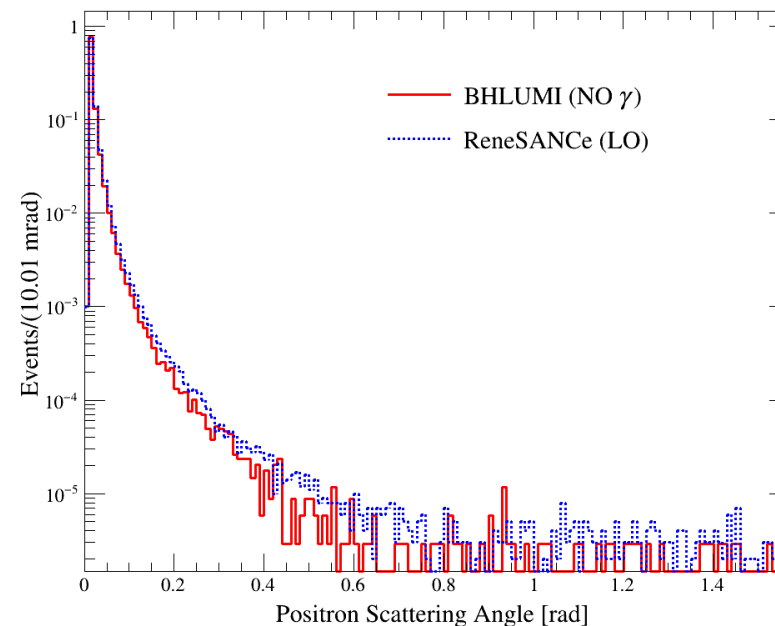
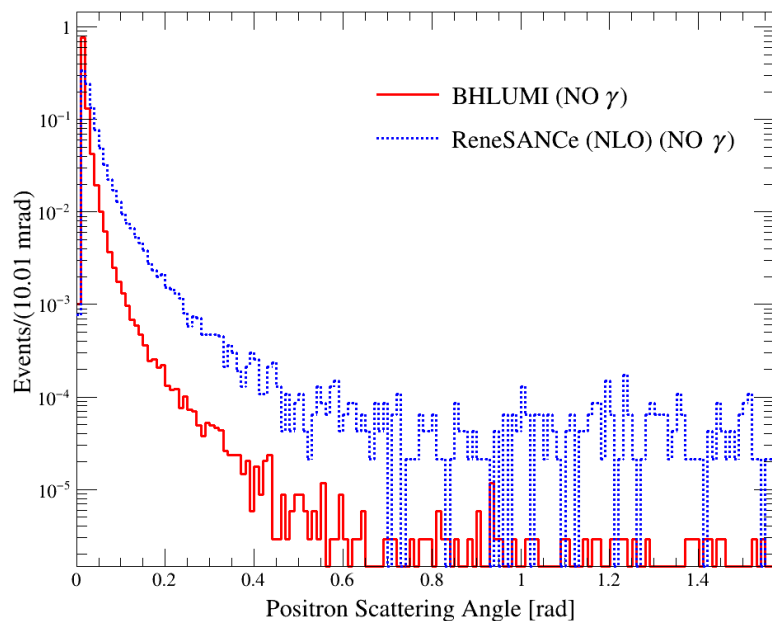
BHLUMI (NLO)(with photons) : 657471
ReneSANCe (NLO) (with photons) : 953210

BHLUMI (NLO)(no photon) : 342529
ReneSANCe (NLO)(no photon) : 46790

BHLUMI (NLO)(no photon) : 342529
ReneSANCe (LO) : $1\text{e}+06$

Backup

Trial3 : $\theta_{\min} = 0.01\text{rad}$, $\theta_{\max} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



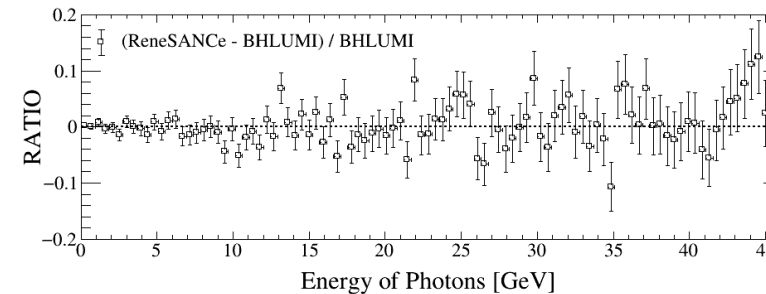
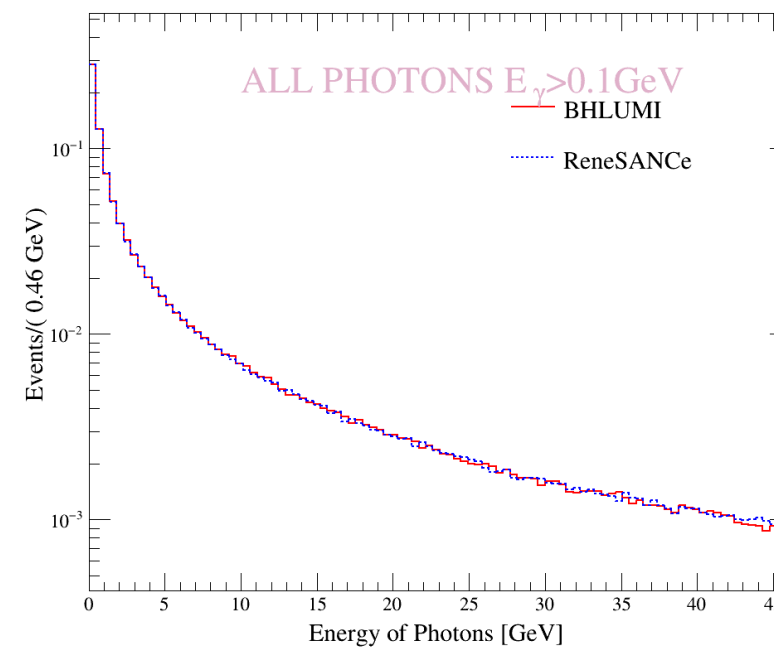
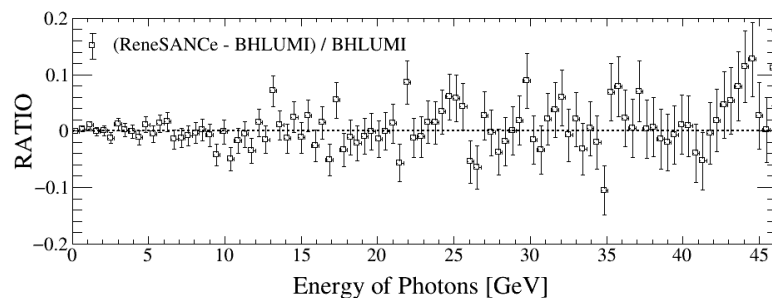
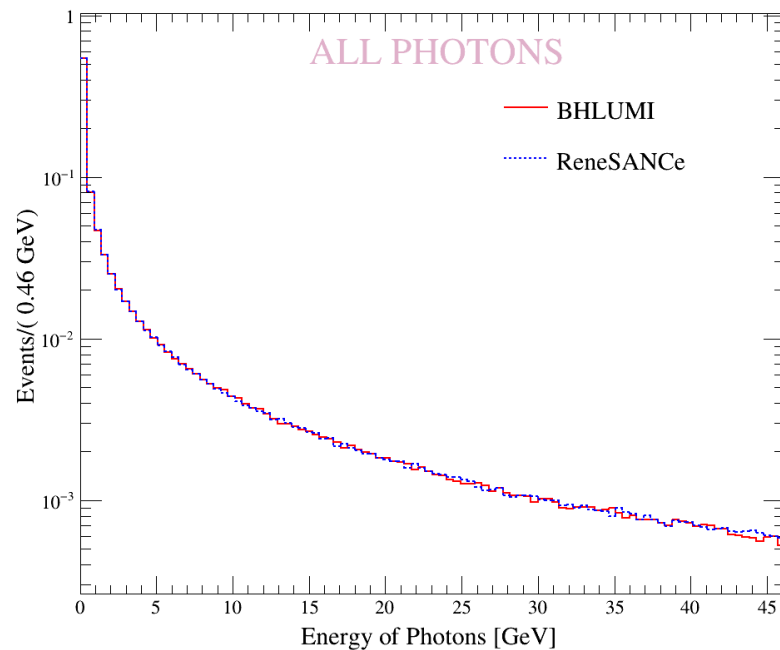
2025/5/20

BHLUMI (NLO)(no photon) : 342529
ReneSANCe (NLO)(no photon): 46790

BHLUMI (NLO)(no photon) : 342529
ReneSANCe (LO): 1e+06

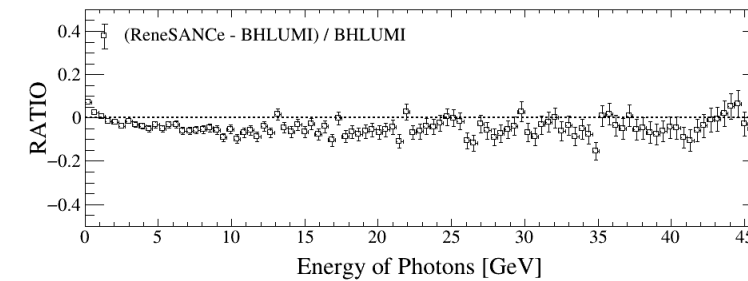
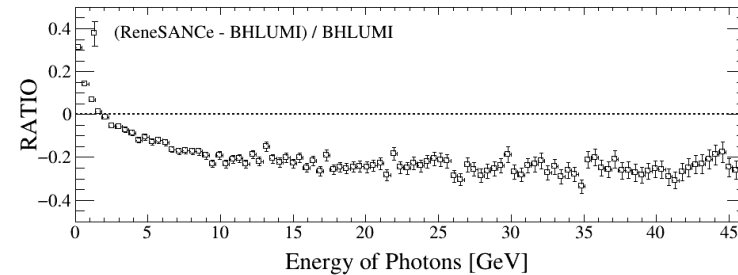
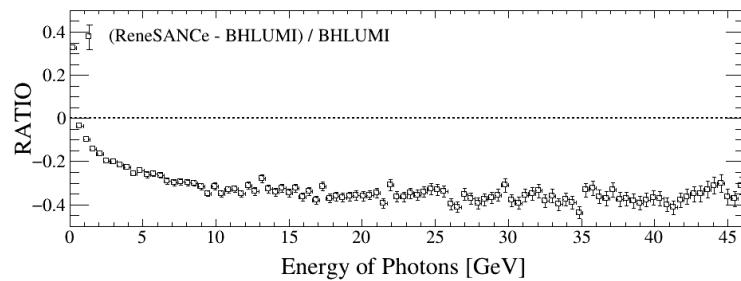
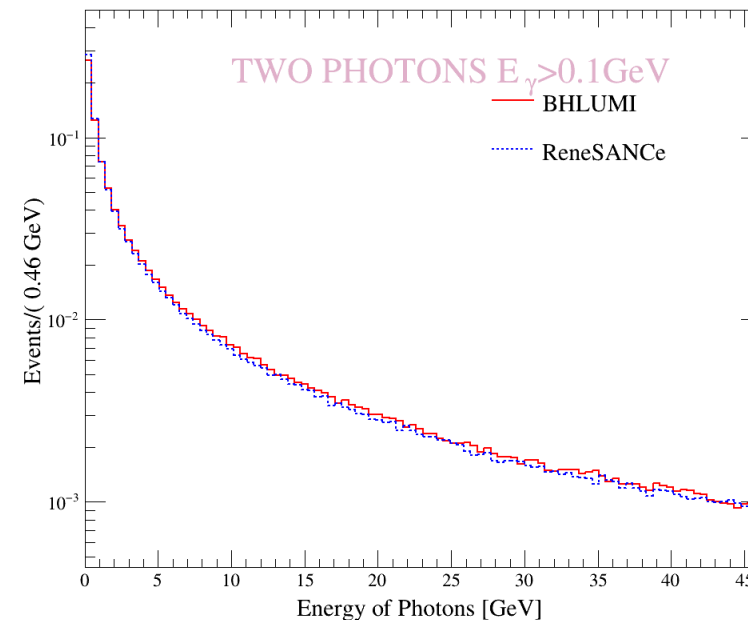
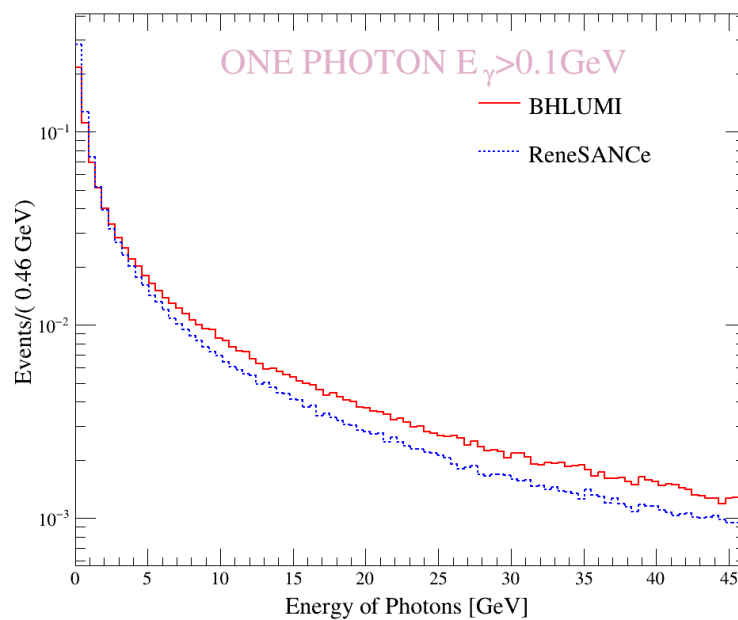
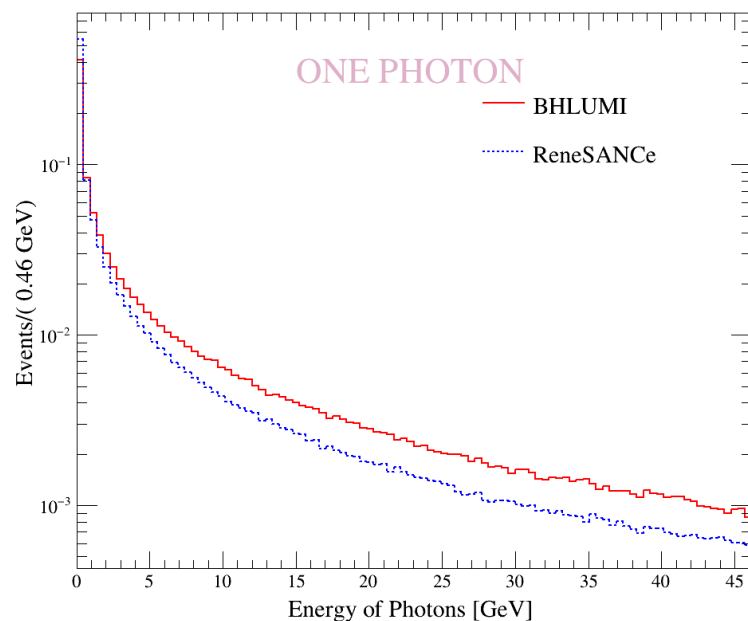
Backup

Trial3 : $\text{thmin} = 0.01\text{rad}$, $\text{thmax} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



Backup

Trial3 : $\text{thmin} = 0.01\text{rad}$, $\text{thmax} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



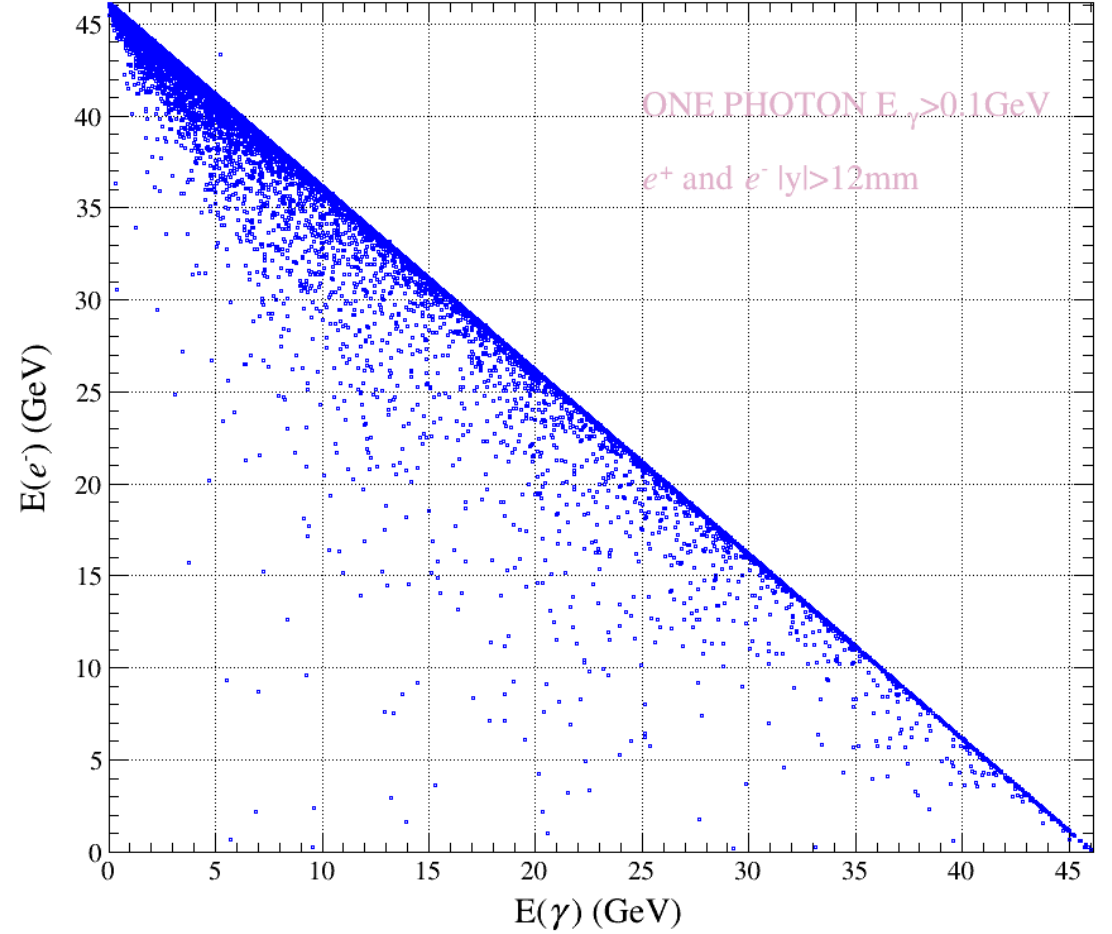
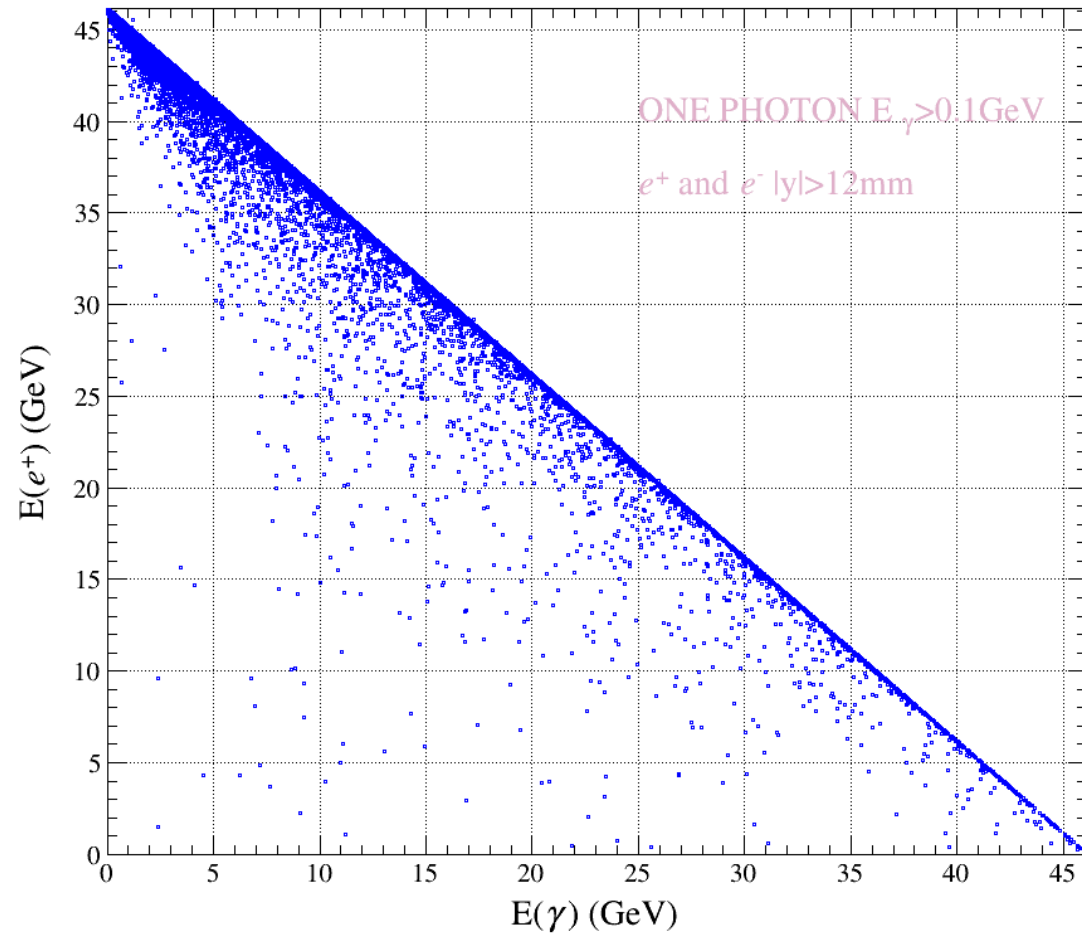
2025/5/20
BHLUMI : 657471
ReneSANCe : 953210

BHLUMI : 494729
ReneSANCe : 607355

BHLUMI : 642805
ReneSANCe : 607355

Backup

Trial3 : $\text{thmin} = 0.01\text{rad}$, $\text{thmax} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



Backup

Trial3 : $\text{thmin} = 0.01\text{rad}$, $\text{thmax} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$

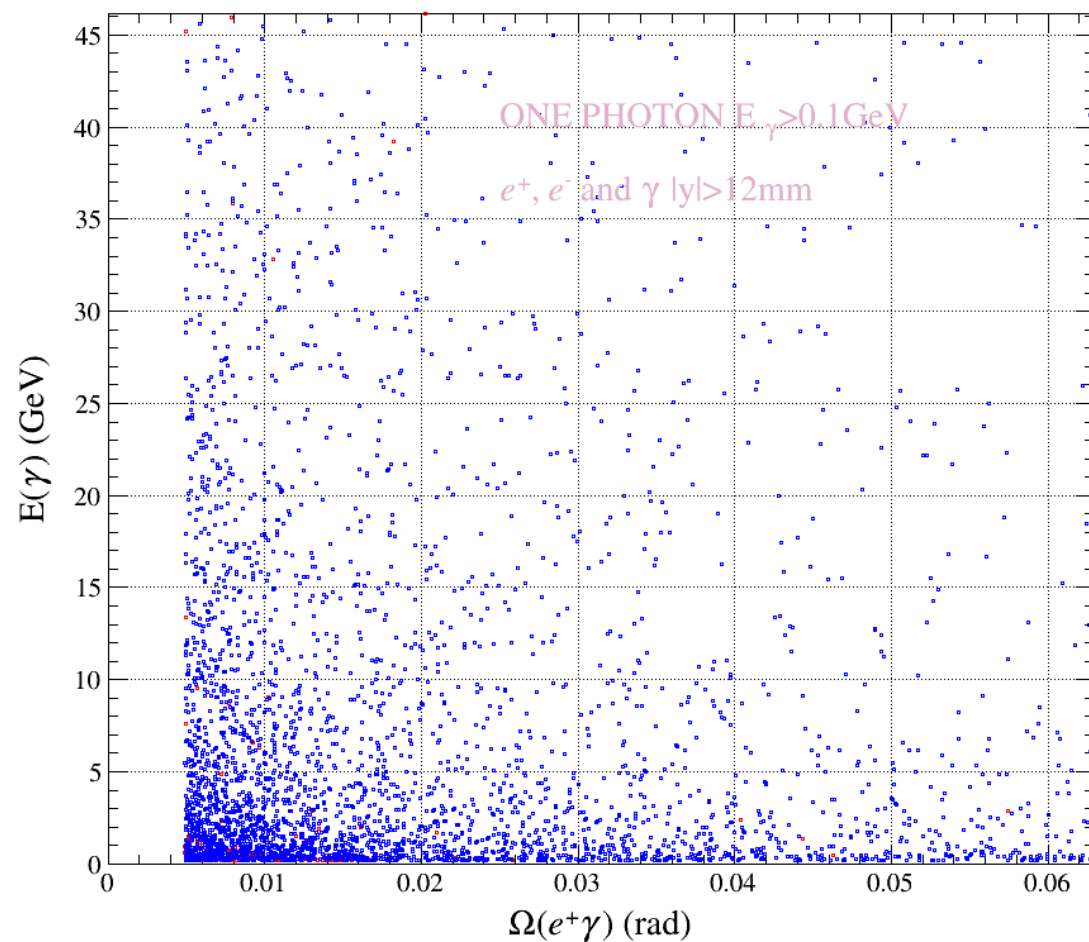
	$ y(e^+), y(e^-) > 12 \text{ mm}$		$ y(e^+), y(e^-) > 12 \text{ mm}$ $E_\gamma > 0.1 \text{ GeV}$			$ y(e^+), y(e^-) , y(\gamma) > 12 \text{ mm}$ $E_\gamma > 0.1 \text{ GeV}$				
BHLUMI	$e^\pm, 0\gamma, n\gamma$	$e^\pm, n\gamma$	$e^\pm, n\gamma$	$e^\pm, \text{ISR}$	$e^\pm, \text{FSR}$	$e^\pm, n\gamma$	$e^\pm, \text{ISR}$	$e^\pm, \text{FSR}$	$\Omega(e, \text{FSR}) > 5\text{mRad}$	$\Omega(p, \text{FSR}) > 5\text{mRad}$
<i>Events</i>	137014	94218	71276	9641	61635	33940	8990	24950	3917	3835
<i>ratio</i>	100.00%	68.77%	52.02%	7.04%	44.98%	24.77%	6.56%	18.21%	2.86%	2.80%
$\sigma(\text{nb})$	172.54	118.65	89.76	12.14	77.62	42.74	11.32	31.42	4.93	4.83
ReneSANCe	$e^\pm, 0\gamma, n\gamma$	$e^\pm, n\gamma$	$e^\pm, n\gamma$	$e^\pm, \text{ISR}$	$e^\pm, \text{FSR}$	$e^\pm, n\gamma$	$e^\pm, \text{ISR}$	$e^\pm, \text{FSR}$	$\Omega(e, \text{FSR}) > 5\text{mRad}$	$\Omega(p, \text{FSR}) > 5\text{mRad}$
<i>Events</i>	161022	143049	89823	34100	55723	42548	32469	10079	4349	4221
<i>ratio</i>	100.00%	88.84%	55.78%	21.18%	34.61%	26.42%	20.16%	6.26%	2.70%	2.62%
$\sigma(\text{nb})$	202.78	180.15	113.12	42.94	70.18	53.58	40.89	12.69	5.48	5.32

	$ y(e^+), y(e^-) > 12 \text{ mm}$		$ y(e^+), y(e^-) > 12 \text{ mm};$ $E_\gamma > 0.1 \text{ GeV}$			$ y(e^+), y(e^-) , y(\gamma) > 12 \text{ mm};$ $E_\gamma > 0.1 \text{ GeV}$			
	$e^\pm, 0\gamma, n\gamma$	$e^\pm, n\gamma$	$e^\pm, n\gamma$	$e^\pm, \text{ISR}$	$e^\pm, \text{FSR}$	$e^\pm, n\gamma$	$e^\pm, \text{ISR}$	$e^\pm, \text{FSR}$	$\Omega(e, \text{FSR}) > 5 \text{ mRad}$
events	1405230	631622	445566	233828	211738	206845	12440	194405	41612
ratio	100%	44.9%	31.7%	16.6%	15.1%	14.7%	0.89%	13.8%	2.96%

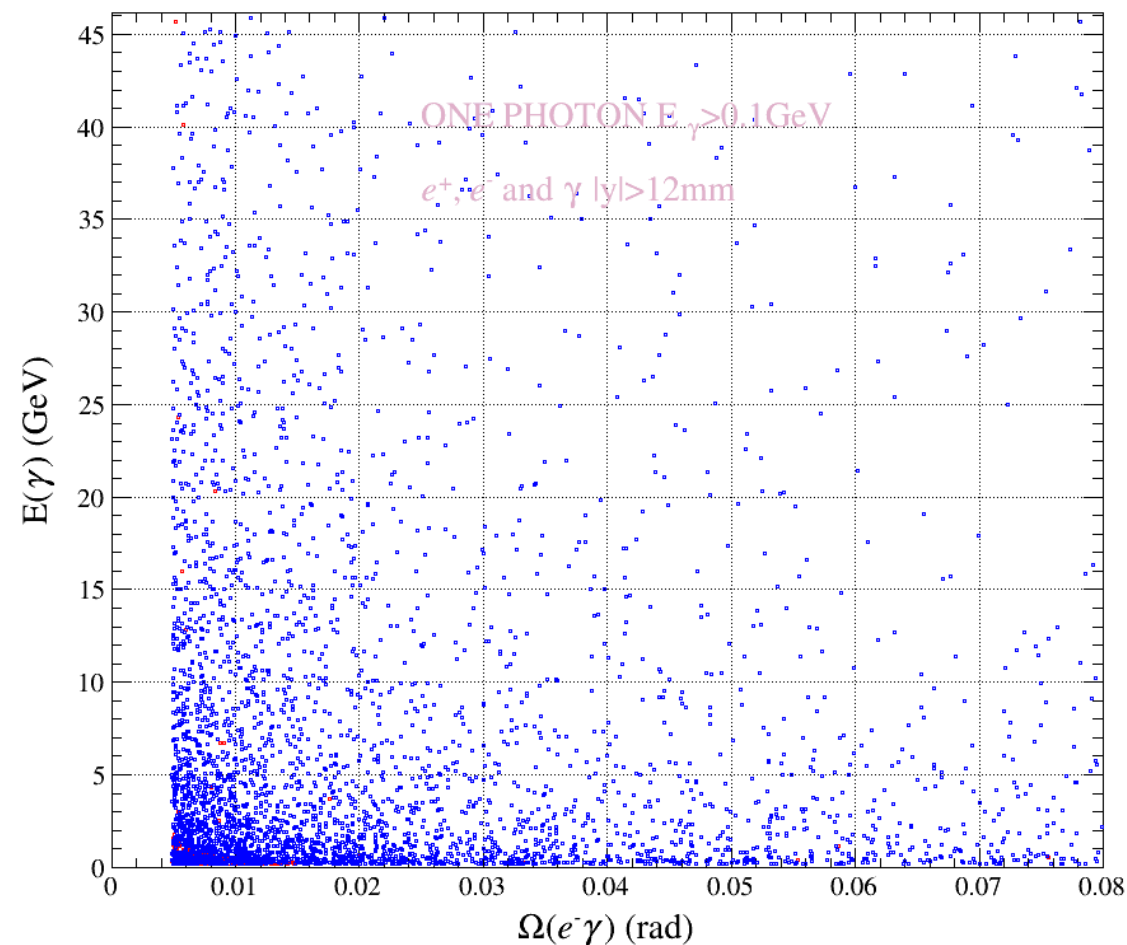
Table 1.2 Bhabha events of BHLUMI generated in (Th1,Th2) of (10,80) mRad are boosted to the LumiCal acceptance of $|y| > 12 \text{ mm}$. The events ratio with $E(\gamma) > 0.1 \text{ GeV}$, and the most energetic photon being an ISR or FSE are selected by the smaller opening angle to electrons. The selections are listed for θ to beam centers and y cuts in front of LYSO at $|z| = 647 \text{ mm}$, corresponding to the lowest LAB frame of 18.5 mRad.

Backup

Trial3 : $\text{thmin} = 0.01\text{rad}$, $\text{thmax} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



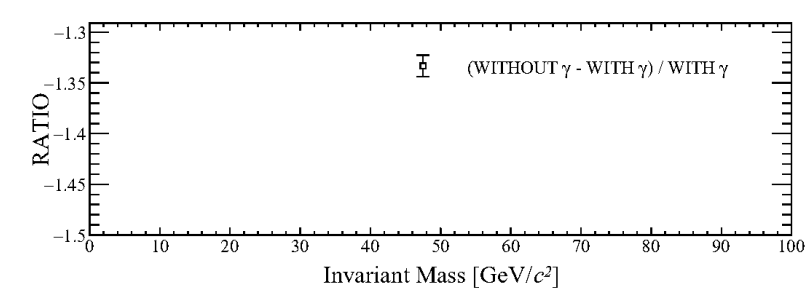
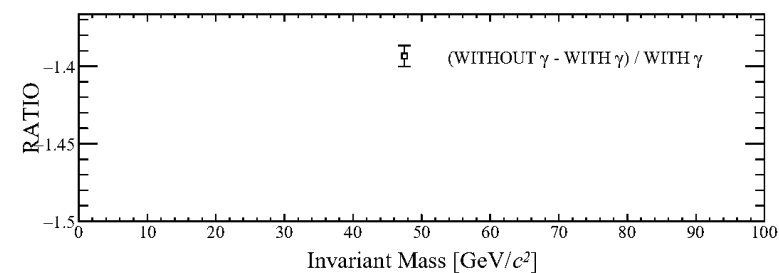
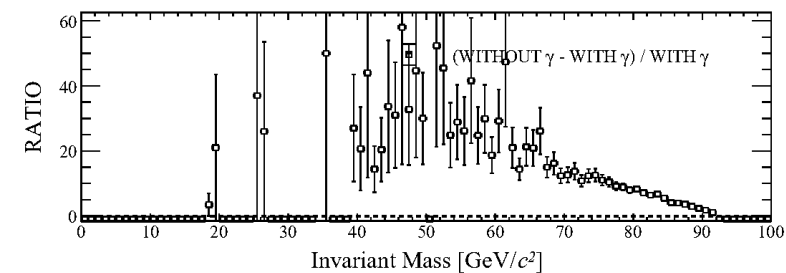
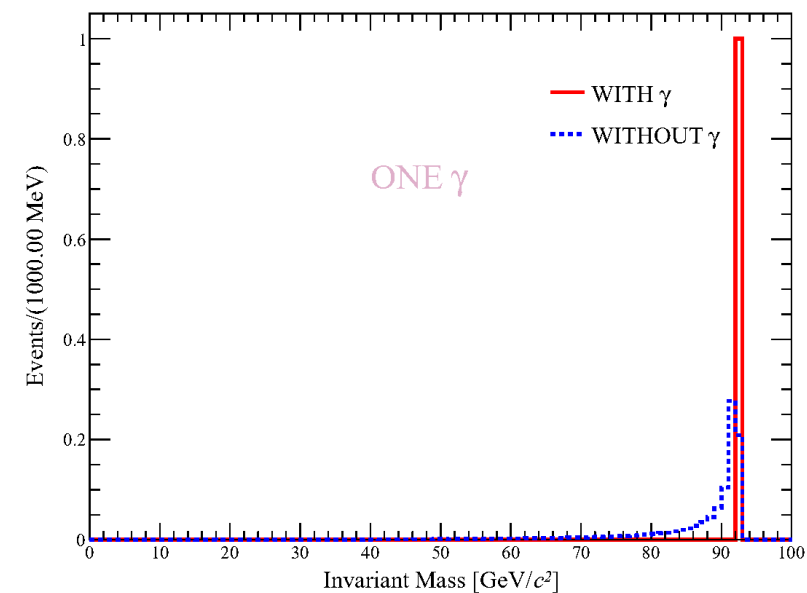
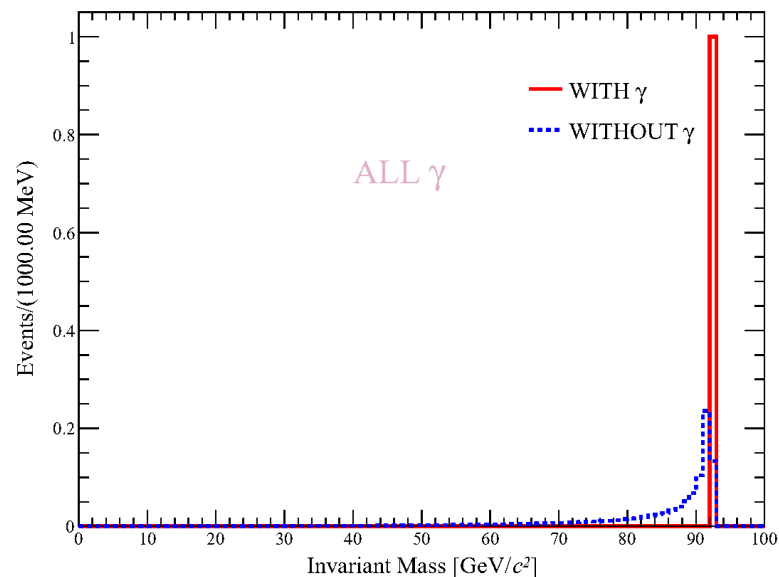
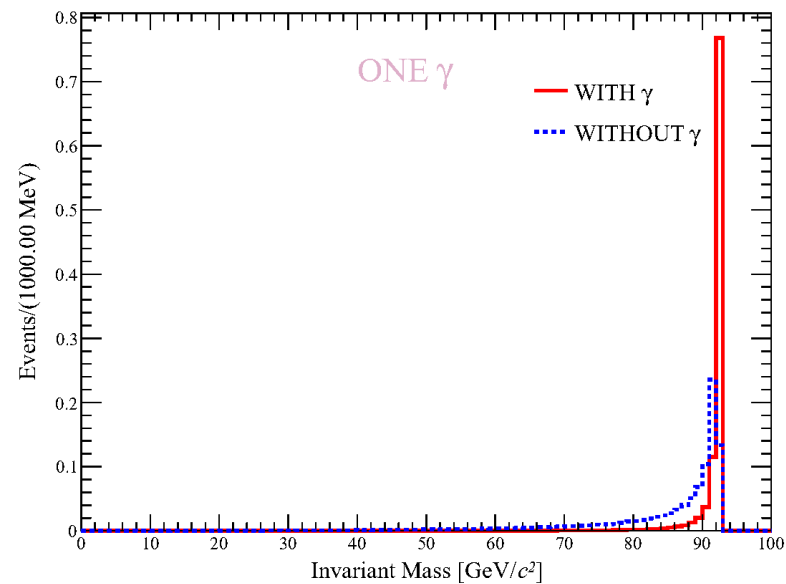
BHLUMI ISR: 248
BHLUMI FSR : 3835



BHLUMI ISR : 244
BHLUMI FSR : 3917

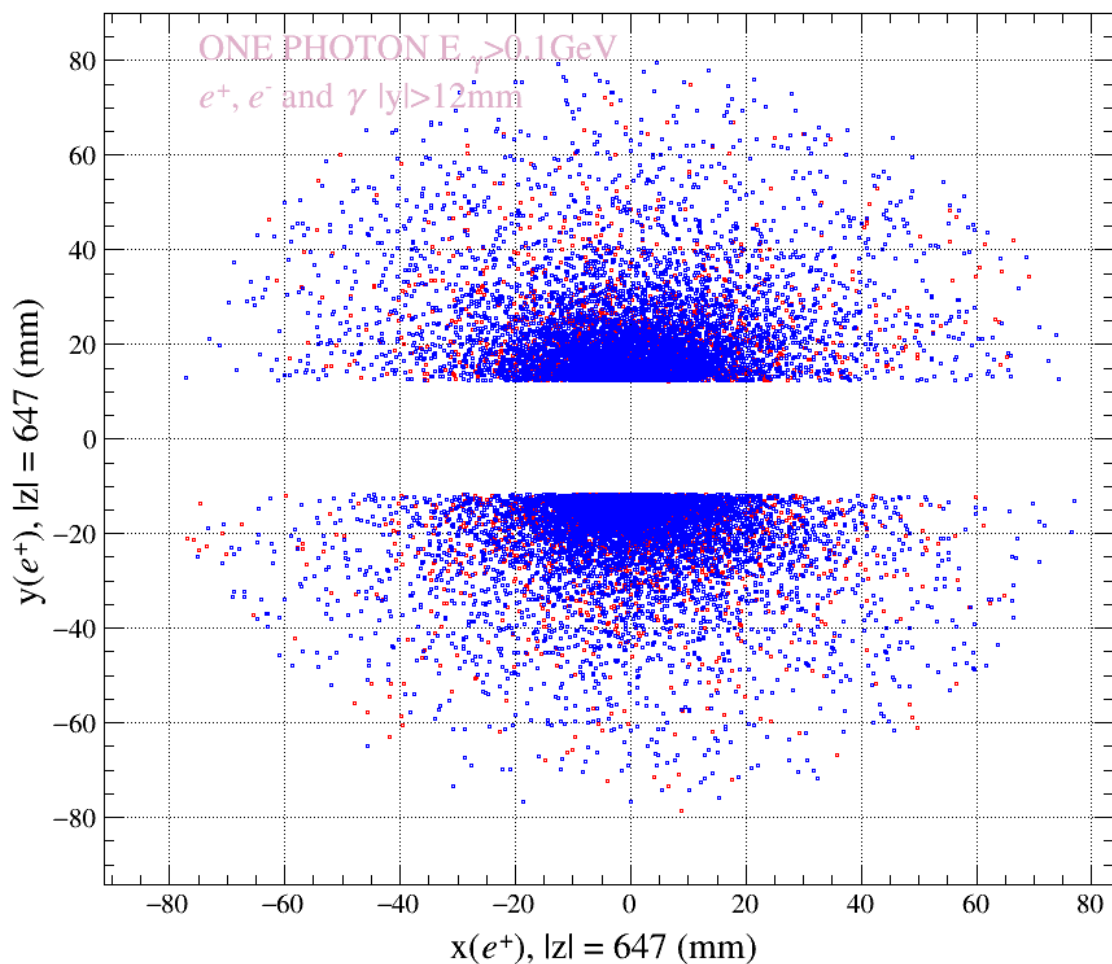
Backup

Trial3 : $\theta_{\min} = 0.01\text{rad}$, $\theta_{\max} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$

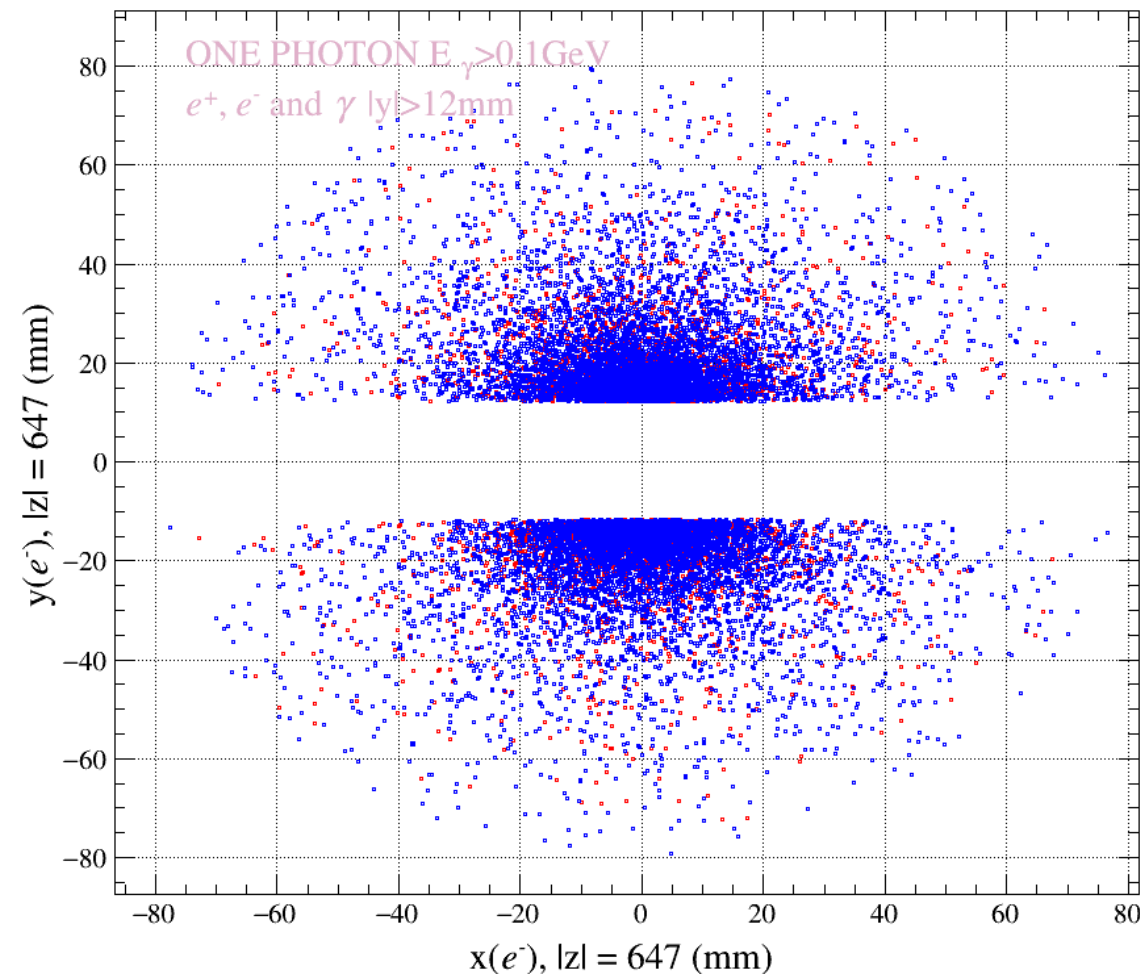


Backup

Trial3 : $\theta_{\min} = 0.01\text{rad}$, $\theta_{\max} = 1.571\text{rad}$, $\sigma \approx 1259\text{ nb}$, $\Delta\sigma = -0.00643\%$



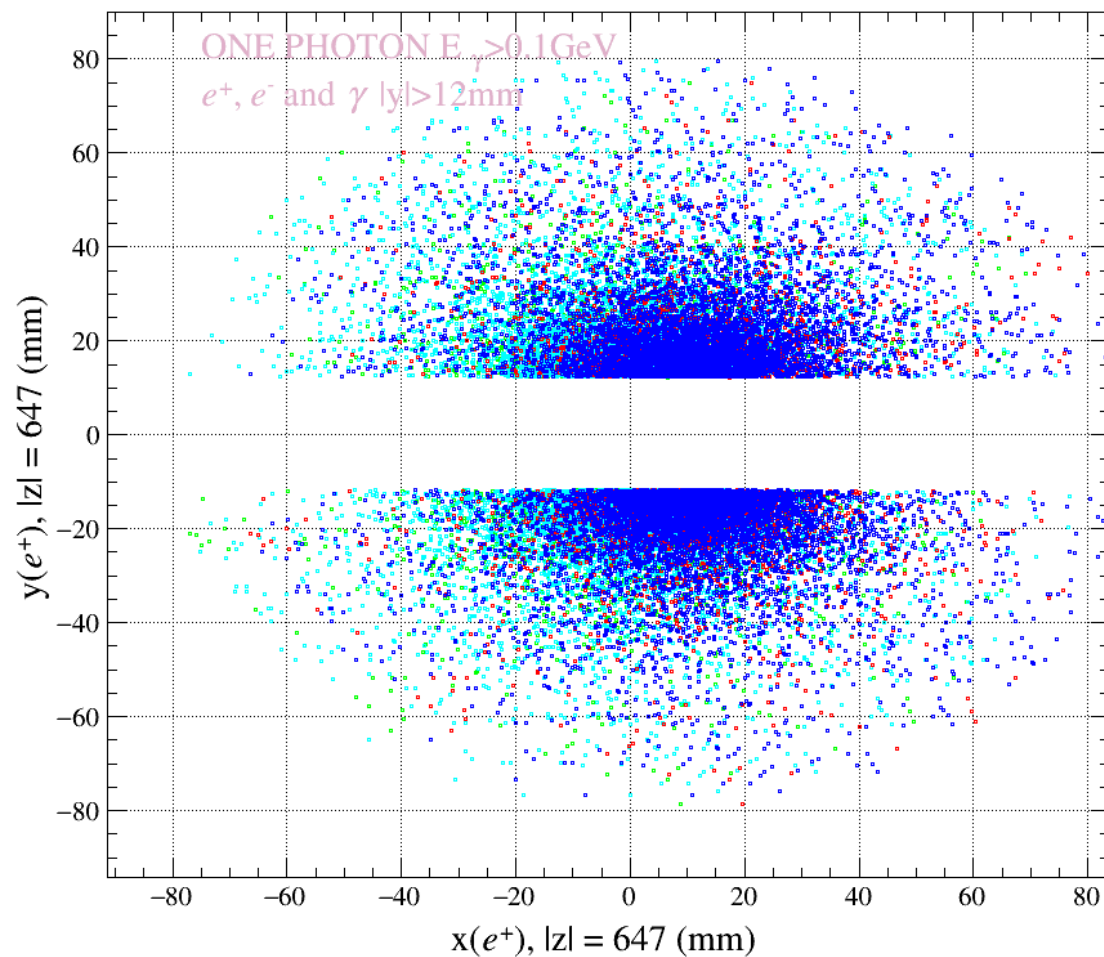
BHLUMI ISR: 4495
BHLUMI FSR : 12481



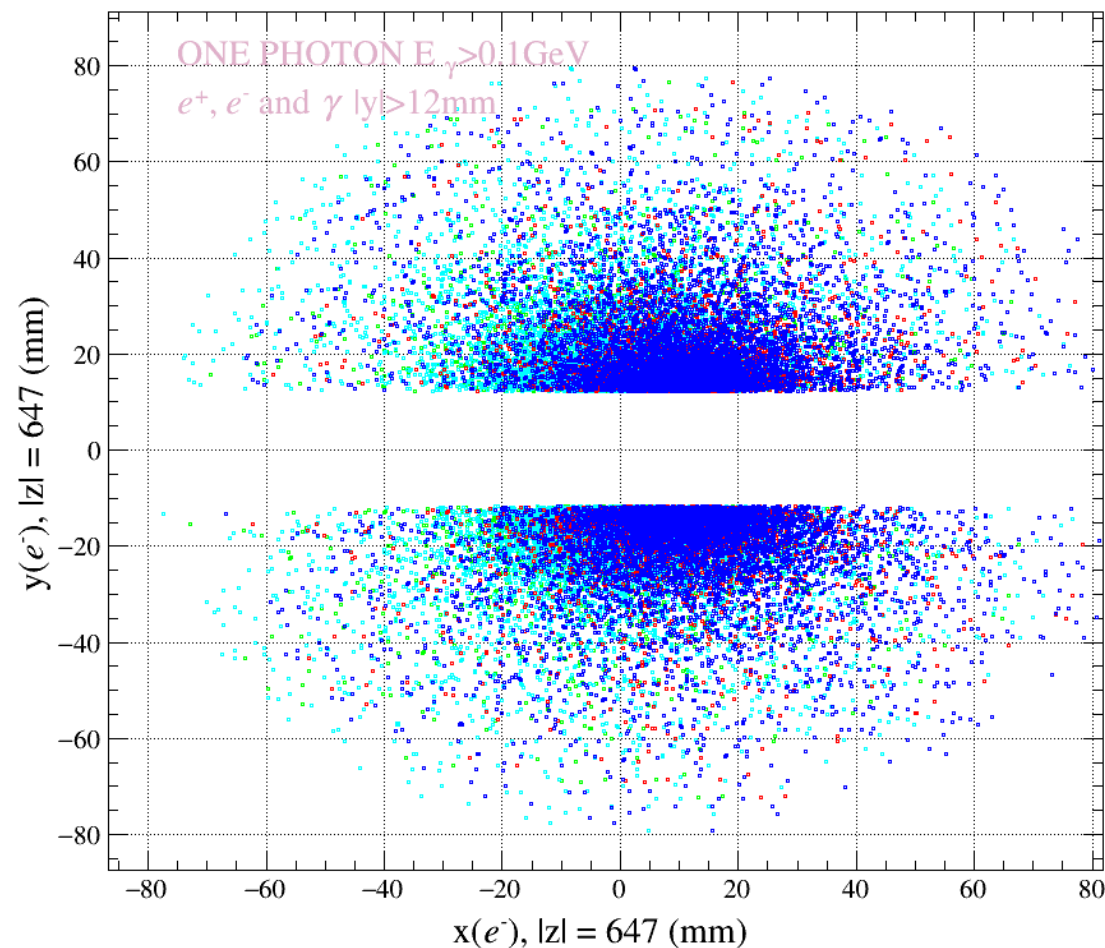
BHLUMI ISR : 4495
BHLUMI FSR : 12469

Backup

Trial3 : $\theta_{\min} = 0.01\text{rad}$, $\theta_{\max} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



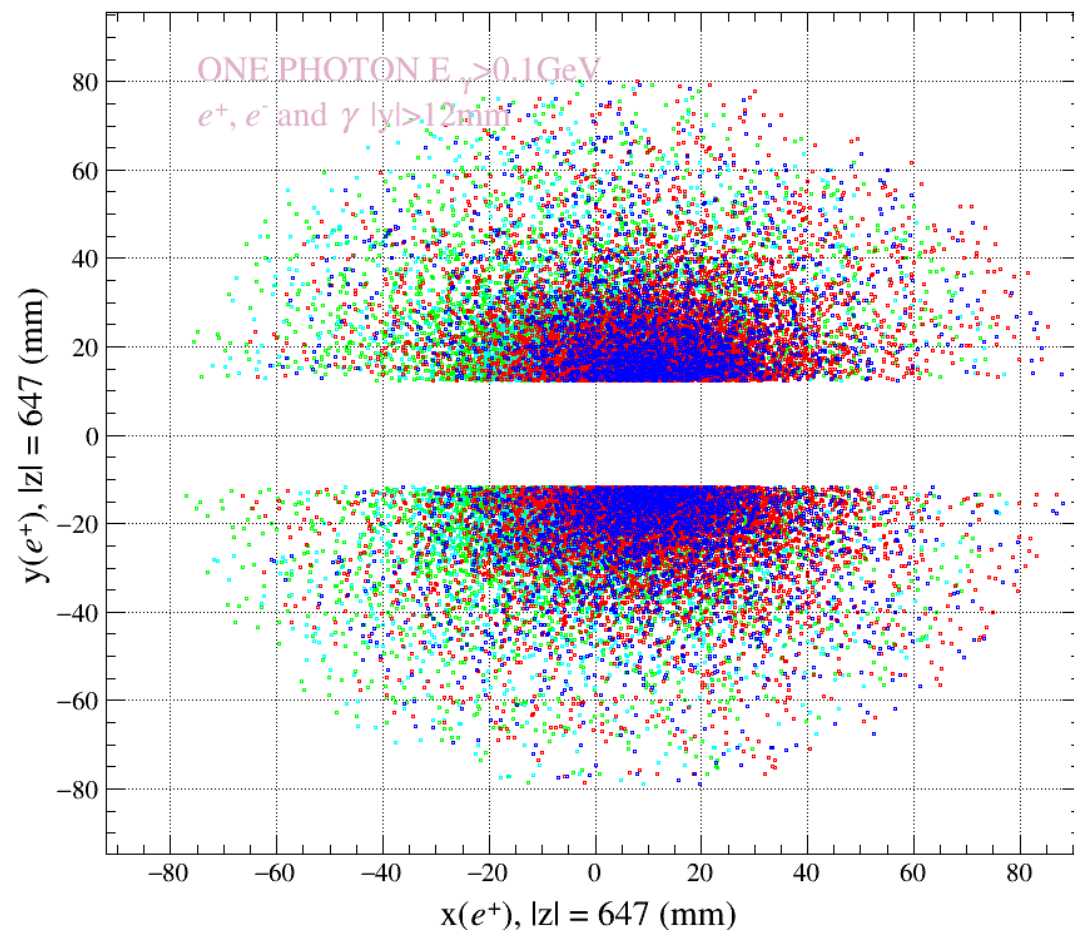
BHLUMI ISR: 4495
BHLUMI FSR: 12481



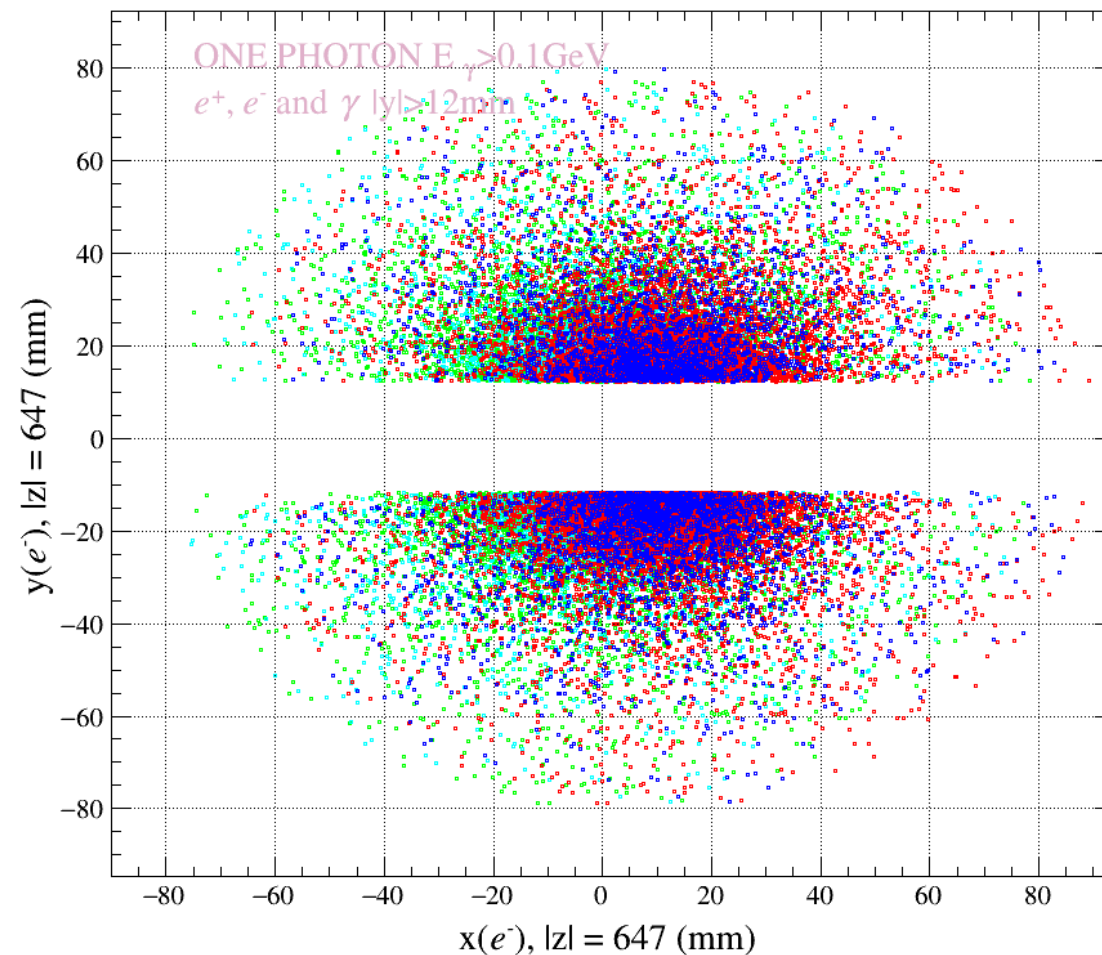
BHLUMI ISR : 4495
BHLUMI FSR : 12469

Backup

Trial3 : $\text{thmin} = 0.01\text{rad}$, $\text{thmax} = 1.571\text{rad}$, $\sigma \approx 1259 \text{ nb}$, $\Delta\sigma = -0.00643\%$



ReneSANCe ISR: 16283
ReneSANCe FSR : 4983



ReneSANCe ISR : 16186
ReneSANCe FSR : 5096