

CEPC LumiCal group meeting

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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	$10 < r, y < 80$	$r > 20$	.and. $ y > 20$	$r > 20$	.and. $ y > 20$
	1172.45	1217.45	217.20	137.46	140.74	131.21
σ (nb)	10 to 80	$10 < r, y < 80$	$r > 25$	.and. $ y > 25$	$r > 25$	.and. $ y > 25$
	1172.45	1217.45	133.42	82.20	85.89	78.08
σ (nb)	10 to 120	$10 < r, y < 120$	$r > 25$	.and. $ y > 25$	$r > 25$	.and. $ y > 25$
	1181.94	1226.98	144.59	91.34	96.94	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	$10 < r, y < 80$ 1242.98	$20 < r$ 290.26	.and. $ y > 20$ 137.20	$20 < r$ 287.31	.and. $ y > 20$ 131.11
σ (nb)	10 to 80 1172.45	$10 < r, y < 80$ 1242.98	$25 < r$ 178.70	.and. $ y > 25$ 81.98	$25 < r$ 170.73	.and. $ y > 25$ 77.99
σ (nb)	10 to 120 1181.94	$10 < r, y < 120$ 1252.38	$25 < r$ 189.81	.and. $ y > 25$ 91.13	$25 < r$ 181.88	.and. $ y > 25$ 87.05

Comparison

@91 GeV (BHLUMI)

	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 1206.67	$10 < r, y < 80$ 1279.09	$20 < r$ 299.21	$. and . y > 20$ 141.52	$20 < r$ 286.90	$. and . y > 20$ 135.25
σ (nb)	10 to 80 1206.67	$10 < r, y < 80$ 1279.09	$25 < r$ 184.40	$. and . y > 25$ 84.64	$25 < r$ 176.19	$. and . y > 25$ 80.52
σ (nb)	10 to 120 1216.68	$10 < r, y < 120$ 1288.97	$25 < r$ 195.90	$. and . y > 25$ 94.14	$25 < r$ 187.75	$. and . y > 25$ 89.95

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CMS :91.00000000000000[GeV]
The total number of events : 10000000.000000000000000
The total cross section : 2631.190389271412641
th1 :0.0100000000000000[Rad]
th2 :0.1200000000000000[Rad]
nevent1_cut1 : 4624080.0000000000000000 (th1 < theta < th2) && s'/s > 0.5
nevent1_cut2 : 4916897.0000000000000000 e+ or e- : r1 < r && |y| < y1 && s'/s > 0.5
nevent1_cut3 : 761785.0000000000000000 (e-: r2 < r && |y| < y1) && cut2
nevent1_cut4 : 372047.0000000000000000 (e-: r2 < r && |y| < y1 && |y| > y2) && cut2
nevent1_cut5 : 729973.0000000000000000 (e+: r2 < r && |y| < y1) && cut3
nevent1_cut6 : 355946.0000000000000000 (e+: r2 < r && |y| < y1 && |y| > y2) && cut4
Cross Section 1 : 1216.683485522215278[nb]
Cross Section 2 : 1293.729213143744118[nb]
Cross Section 3 : 200.440137069112296[nb]
Cross Section 4 : 97.892649075726126[nb]
Cross Section 5 : 192.069794202762097[nb]
Cross Section 6 : 93.656169429960215[nb]
Beam_Lab : (16.501497538082106, 0.000000000000000, 1000.000000000000000)

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Xcru, AWT, DWT, Xcru*AWT= 2631.1903892714126 5.3
NevTot = 10000000
Theta Th1,Th2 (mRad)= 1.0000000000000000E-002 0.12000
NevTot Sum WtMod SumAllWt = 10000000.000000000
NthBARE1(th=Th1,Th2) SthBARE1Wt = 4846681.000000000
NevBARE1 1-sp/s lt .5 SevBARE1Wt = 4624080.000000000
NthBARE1(th=Th1,Th2) = 4846681
NevBARE1 1-sp/s lt .5= 4624080
NrjBARE1 1-sp/s nlt.5= 222601
Xcru*NevBare1/NevTot = 1216.6834855222155

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Comparison

@240 GeV (BHLUMI)

	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 80 174.33	$10 < r, y < 80$ 186.10	$20 < r$ 43.48	$. and . y > 20$ 20.58	$20 < r$ 41.49	$. and . y > 20$ 19.56
σ (nb)	10 to 80 174.33	$10 < r, y < 80$ 186.10	$25 < r$ 26.81	$. and . y > 25$ 12.31	$25 < r$ 25.50	$. and . y > 25$ 11.65
σ (nb)	10 to 120 175.99	$10 < r, y < 120$ 187.75	$25 < r$ 28.51	$. and . y > 25$ 13.72	$25 < r$ 27.21	$. and . y > 25$ 13.03

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CMS :240.00000000000000[GeV]
The total number of events : 10000000.000000000000000
The total cross section : 382.577777244586741
th1 :0.0100000000000000[Rad]
th2 :0.0800000000000000[Rad]
nevent1_cut1 : 4556688.000000000000000 (th1 < theta < th2) && s'/s > 0.5
nevent1_cut2 : 4904724.000000000000000 e+ or e- : r1 < r && |y| < y1 && s'/s > 0.5
nevent1_cut3 : 1174783.000000000000000 (e-: r2 < r && |y| < y1) && cut2
nevent1_cut4 : 568041.000000000000000 (e-: r2 < r && |y| < y1 && |y| > y2) && cut2
nevent1_cut5 : 1121047.000000000000000 (e+: r2 < r && |y| < y1) && cut3
nevent1_cut6 : 539053.000000000000000 (e+: r2 < r && |y| < y1 && |y| > y2) && cut4
Cross Section 1 : 174.32875666370813[nb]
Cross Section 2 : 187.643840591817849[nb]
Cross Section 3 : 44.944586888472735[nb]
Cross Section 4 : 21.731986316379231[nb]
Cross Section 5 : 42.888766944671225[nb]
Cross Section 6 : 20.622969855702625[nb]
Beam Lab : (16.501497538082106, 0.000000000000000, 1000.000000000000000)

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Xcru, AWT, DWT, Xcru*AWT= 382.57777724458674 5.
NevTot = 10000000
Theta Th1,Th2 (mRad)= 1.0000000000000000E-002 8.000
NevTot Sum WtMod SumAllWt = 10000000.000000000
NthBARE1(th=Th1,Th2) SthBARE1Wt = 4794737.000000000
NevBARE1 1-sp/s lt .5 SevBARE1Wt = 4556688.000000000
NthBARE1(th=Th1,Th2) = 4794737
NevBARE1 1-sp/s lt .5= 4556688
NrjBARE1 1-sp/s nlt.5= 238049
Xcru*NevBare1/NevTot = 174.32875666370813

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Comparison

@92.3 GeV

th1 = 0.01,
th2 = 0.08 or 0.12,
thmin = 0.7* th1,
thmax = 2*th2

	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	$10 < r, y < 80$ 1242.98	$20 < r$ 290.26	. and. $ y > 20$ 137.20	$20 < r$ 287.31	. and. $ y > 20$ 131.11
σ (nb)	10 to 80 1172.45	$10 < r, y < 80$ 1242.98	$25 < r$ 178.70	. and. $ y > 25$ 81.98	$25 < r$ 170.73	. and. $ y > 25$ 77.99
σ (nb)	10 to 120 1181.94	$10 < r, y < 120$ 1252.38	$25 < r$ 189.81	. and. $ y > 25$ 91.13	$25 < r$ 181.88	. and. $ y > 25$ 87.05

th1 = 0.007,
thmin = th1,
thmax = PI / 2

ReneSANCe	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 1223.68	$10 < r, y < 80$ 1333.88	$20 < r$ 351.78	. and. $ y > 20$ 172.22	$20 < r$ 330.31	. and. $ y > 20$ 156.61
σ (nb)	10 to 80 1223.68	$10 < r, y < 80$ 1333.88	$25 < r$ 225.85	. and. $ y > 25$ 106.96	$25 < r$ 211.31	. and. $ y > 25$ 96.64
σ (nb)	10 to 120 1240.96	$10 < r, y < 120$ 1351.72	$25 < r$ 242.87	. and. $ y > 25$ 121.11	$25 < r$ 228.46	. and. $ y > 25$ 110.69

Comparison

@92.3 GeV

th1 = 0.007,
th2 = $\text{PI} / 2$,
thmin = th1,
thmax = th2

BHLUMI	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 1171.55	$10 < r, y < 80$ 1241.93	$20 < r$ 290.17	. and. $ y > 20$ 137.32	$20 < r$ 278.17	. and. $ y > 20$ 131.13
σ (nb)	10 to 80 1171.55	$10 < r, y < 80$ 1241.93	$25 < r$ 178.69	. and. $ y > 25$ 81.96	$25 < r$ 170.75	. and. $ y > 25$ 77.92
σ (nb)	10 to 120 1182.88	$10 < r, y < 120$ 1253.27	$25 < r$ 190.01	. and. $ y > 25$ 91.26	$25 < r$ 182.06	. and. $ y > 25$ 87.12

ReneSANCe	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 1223.68	$10 < r, y < 80$ 1333.88	$20 < r$ 351.78	. and. $ y > 20$ 172.22	$20 < r$ 330.31	. and. $ y > 20$ 156.61
σ (nb)	10 to 80 1223.68	$10 < r, y < 80$ 1333.88	$25 < r$ 225.85	. and. $ y > 25$ 106.96	$25 < r$ 211.31	. and. $ y > 25$ 96.64
σ (nb)	10 to 120 1240.96	$10 < r, y < 120$ 1351.72	$25 < r$ 242.87	. and. $ y > 25$ 121.11	$25 < r$ 228.46	. and. $ y > 25$ 110.69

th1 = 0.007,
thmin = th1,
thmax = $\text{PI} / 2$