	Apr-07	Apr-07	Jun-08
Simulation parameters for coherent tune shift experiments			
			Files
Data reference	http://cesrelog.lns.cornell.edu		3232-3420
Beam parameters	Drift	Dipole	Drift
Number of bunches	10	10	10
Bunch spacing interval	14	14	14
Bunch intensity	0.75	0.75	0.75
Particles per bunch	1.2	1.2	1.2
Total beam intensity	7.5	7.5	7.5
Horiz. Emittance (rms, geom)	132	132	133
Vertical Emittance (rms, geom)	1.32	1.32	1.33
Horiz beta	19.64	15.36	18.31
Vertical beta	18.82	18.75	16.49
Horizontal beam size (rms)	1.61	1.42	1.56
Vertical beam size (rms)	0.16	0.16	0.15
Bunch length (rms)	12.6	12.6	17.24
Bunch duration (rms)	42	42	57
Particle species	positrons	positrons	positrons
Circumference	768.43	768.43	768.43
Beam energy	1.89	1.89	5.29
Chamber parameters			
Geometry	elliptical	elliptical	elliptical
Radius	4.5H X 2.5V	4.5H X 2.5V	4.5H X 2.5V
Material	Aluminum	Aluminum	Aluminum
Magnetic field parameters			
Type	field free	Dipole	field free
Length	1	1	1
Field strength	0	715	0
Radiation parameters			
Photon intensity	0.23	0.53	0.58
Weight factor	0.25	0.59	0.23

Photoeffect parameters

Quantum efficiency	0.1	0.1	0.1
Reflectivity	15	15	10
Photoelectron peak energy	5	5	5
Photoelectron rms energy spread (gaussian)	5	5	5
Rms width of vertical size of radiation stripe (gaussian)	1	1	1
Power in angular distrbution (dN/domega=costheta^pangphel)	1	1	1

SEY parameters

Material	Aluminum	Aluminum	Aluminum
Total SEY yield maximum	1.8	1.8	1.8
SEY yield peak energy	310	310	310
Elastic electron parameters			
R(inf) (Elastic yield at high energies)	0.02	0.02	0.02
R(E0) (Elastic yield at peak)	0.45	0.45	0.45
Location of maximum value of R	0	0	0
Typical energy width of elastic SEY yield	15	15	15
rms energy spread of "elastic" secondaries	2	2	2
Power used in exponential	1	1	1
Yield angular dependence parameter	0.26	0.26	0.26
Power used in angular dependence	2	2	2
Rediffused electron parameters			
Rediffused yield at high energies	0.16	0.17	0.16
Energy scale for incident energy dependence	0.04	0.04	0.04
Power used in exponential	0.1	0.1	0.1
Power used in energy scaling for rediffused secondaries	0.5	0.5	0.5
Yield angular dependence parameter	0.26	0.26	0.26
Power used in angular dependence	2	2	2
True secondary parameters			
Peak energy	310	310	310
Yield at peak energy	1.62	1.62	1.62
Power used in scaling function	1.54	1.54	1.54
Yield angular dependence parameter	0.66	0.66	0.66
Power used in angular dependence	0.8	0.8	0.8
peak energy angular dependence parameter	0.7	0.7	0.7
Power used in angular dependence	1	1	1
Scaling function power angular dependence parameter	0	0	0

Power used in angular dependence	0	0	0
Secondary energy power scaling parameter for n=1	2.5	2.5	2.5
Secondary energy power scaling parameter for n=2	3.3	3.3	3.3
Secondary energy power scaling parameter for n=3	2.5	2.5	2.5
Secondary energy power scaling parameter for n=4	2.5	2.5	2.5
Secondary energy power scaling parameter for n=5	2.8	2.8	2.8
Secondary energy power scaling parameter for n=6	1.3	1.3	1.3
Secondary energy power scaling parameter for n=7	1.5	1.5	1.5
Secondary energy power scaling parameter for n=8	1.5	1.5	1.5
Secondary energy power scaling parameter for n=9	1.5	1.5	1.5
Secondary energy power scaling parameter for n=10	1.5	1.5	1.5
Secondary energy exponential scaling parameter for n=1	1.5	1.5	1.5
Secondary energy exponential scaling parameter for n=2	1.75	1.75	1.75
Secondary energy exponential scaling parameter for n=3	1	1	1
Secondary energy exponential scaling parameter for n=4	3.75	3.75	3.75
Secondary energy exponential scaling parameter for n=5	8.5	8.5	8.5
Secondary energy exponential scaling parameter for n=6	11.5	11.5	11.5
Secondary energy exponential scaling parameter for n=7	2.5	2.5	2.5
Secondary energy exponential scaling parameter for n=8	3	3	3
Secondary energy exponential scaling parameter for n=9	2.5	2.5	2.5
Secondary energy exponential scaling parameter for n=10	3	3	3

Numerical Parameters

Time step during bunch	3.36	3.36	4.60
Time step between bunches	91.60	91.60	88.50
Number of macroelectrons generated per bunch	12000	30000	12000
Central density-x dimension	4.50	4.50	4.50
Central density-y dimension	0.05	0.05	0.05

Jun-08	Jul-08	Jul-08		
Files	Files	Files		
3232-3420	6407-6556	6407-6556		
Dipole	Drift	Dipole	Units	POSINST parameter name
10	10	10		
14	14	14	ns	
0.75	1.5	1.5	mA	
1.2	2.4	2.4	x 10^10	xnpnom
7.5	15	15	mA	
133	133	133	nm	
1.33	1.33	1.33	nm	
15.4	18.31	15.4	m	
18.16	16.49	18.16	m	
1.43	1.56	1.43	mm	sigx
0.16	0.15	0.16	mm	sigy
17.24	17.24	17.24	mm	sigz
57	57	57	ps	
positrons	positrons	positrons		
768.43	768.43	768.43	m	circ
5.29	5.29	5.29	GeV	beamen
elliptical	elliptical	elliptical		
4.5H X 2.5V	4.5H X 2.5V	4.5H X 2.5V	cm	ach X bch
Aluminum	Aluminum	Aluminum		
Dipole	field free	Dipole		
1	1	1	m	slength
2011	0	2011	Gauss	bfield
1.14	0.58	1.14	photons/meter/ beam particle	photpbpm
0.61	0.23	0.61		

		photoelectrons/	
0.1	0.1	0.1 photon	qeffp
10	10	10 %	refleff
5	5	5 eV	ek0phel
5	5	5 eV	eksigphel
1	1	1 mm	sigyphel
1	1	1	pangphel
Aluminum	Aluminum	Aluminum	
1.8	1.8	1.8	deltpk
310	310	310 eV	E0pk
0.02	0.02	0.02	P1einf
0.45	0.45	0.45	P1epk
0	0	0 eV	E0epk
15	15	15 eV	E0w
2	2	2 eV	sige
1	1	1	powe
0.26	0.26	0.26	epar1
2	2	2	epar2
0.17	0.16	0.17	P1rinf
0.04	0.04	0.04 eV	Ecr
0.1	0.1	0.1	qr
0.5	0.5	0.5	pr
0.26	0.26	0.26	rpar1
2	2	2	rpar2
310	310	310 eV	E0tspk
1.62	1.62	1.62	dtspk
1.54	1.54	1.54	powts
0.66	0.66	0.66	epar1
0.8	0.8	0.8	epar2
0.7	0.7	0.7	epar1
1	1	1	epar2
0	0	0	epar1

0	0	0	epar2
2.5	2.5	2.5	pnpar (1)
3.3	3.3	3.3	pnpar (2)
2.5	2.5	2.5	pnpar (3)
2.5	2.5	2.5	pnpar (4)
2.8	2.8	2.8	pnpar (5)
1.3	1.3	1.3	pnpar (6)
1.5	1.5	1.5	pnpar (7)
1.5	1.5	1.5	pnpar (8)
1.5	1.5	1.5	pnpar (9)
1.5	1.5	1.5	pnpar (10)
1.5	1.5	1.5 eV	enpar (1)
1.75	1.75	1.75 eV	enpar (2)
1	1	1 eV	enpar (3)
3.75	3.75	3.75 eV	enpar (4)
8.5	8.5	8.5 eV	enpar (5)
11.5	11.5	11.5 eV	enpar (6)
2.5	2.5	2.5 eV	enpar (7)
3	3	3 eV	enpar (8)
2.5	2.5	2.5 eV	enpar (9)
3	3	3 eV	enpar (10)

4.60	4.60	4.60 ps
88.50	88.50	88.50 ps
30000	12000	30000
4.50	4.50	4.50 mm
0.05	0.05	0.05 mm

Density data 1.885 GeV 10 bunch train 0.75 mA/bunch 4/2/07

bunch number	density-(10^10 /m^3)	error
25		
1	5.07E-06	0
2	1.17	1
3	4.53	1
4	8.05	1
5	10.51	1
6	12.98	1
7	15.68	1
8	17.26	1
9	19.02	1
10	22.19	1
11	17.93	1
12	12.46	1
13	11.58	1
14	15.52	1
15	14.26	1
16	11.33	1
17	10.22	1
18	9.24	1
19	10.59	1
20	8.5	1
22	7.54	1
26	3.82	1
30	2.54	1
34	4.04	1
38	0.69	1
42	5.15	1

Density data 5.3 GeV 10 bunch train 0.75 mA/bunch 6/15/08

bunch numbe	density	error
24		
1	0	0
2	3.62	1.09
3	10.85	1.09
4	14.83	1.09
5	19.53	1.09
6	22.79	1.09
7	26.04	1.09
8	30.02	1.09
9	32.55	1.09
10	35.08	1.09
11	37.62	4.63
12	24.6	7.79
13	28.21	8.44
14	19.53	5.83
15	21.7	5.12
16	19.17	4.22
17	19.89	4.22
18	18.08	7.55
19	16.64	3.9
20	14.83	4.22
25	10.85	4.09
30	9.4	3.62
35	10.13	3.07
40	6.51	3.62
45	5.79	3.07

Density data 5.3 GeV 10 bunch train 1.5 n

bunch numbe	density	error
24		
1	0	1.06
2	8.32	1.06
3	14.83	1.06
4	24.96	1.06
5	32.91	1.06
6	38.7	1.06
7	40.15	1.06
8	38.7	1.06
9	45.94	1.06
10	53.17	1.06
11	53.53	7.79
12	35.45	16.83
13	43.4	19.48
14	43.4	18.6
15	42.68	29.51
16	49.19	25.58
17	18.08	57.98
18	41.96	25.97
19	43.4	8.09
20	7.23	58.16
24	28.94	5.12
29	15.91	6.82
34	13.02	6.47
39	13.02	6.82
44	11.57	7.79