

Parameters for CeC PoP experiment

Electron beam parameters		Ion beam parameters	
Energy, γ	28.5	Energy, γ	28.5
Peak current, A	50	Bunch intensity	0.86e9
Bunch charge, nC	1.5	Bunch length (FWHM), ns	8.4
RMS relative energy spread	2e-4 (slice) <5e-4 (projected)	Relative energy spread (FWHM)	3e-3
Normalized emittance, RMS, mm.mrad	3e-6	RF voltage (28MHz), KV	400
Beam width at modulator/kicker, RMS, mm	0.5	Normalized emittance, RMS, mm.mrad	2.5
Minimal beam width at amplifier, RMS, mm	0.1	β^* at cooling section, m	5
RMS bunch length, ps	12	Average β function at cooling section, m	10
Common section length, m	14		

File

Design+Trim Ramp: Au21-26GeV-bd0 Config: dbconfig/160000000 Blue Species: Au Yellow Species: Au

Options State BetaStarSlopes Off DR8toDRG On DipoleHarmonics Off FamilyTF On WarmTF On polyField On specificTF On

Blue Yellow DxAngles StoneEditor

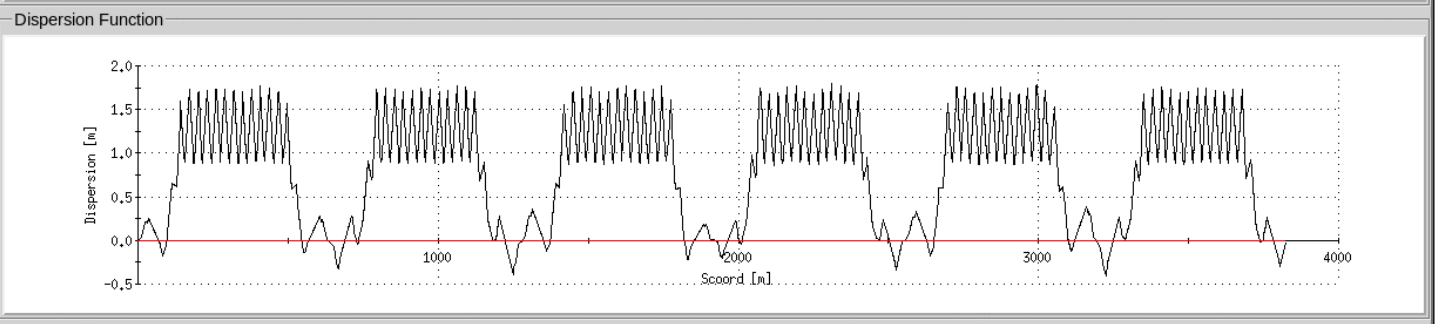
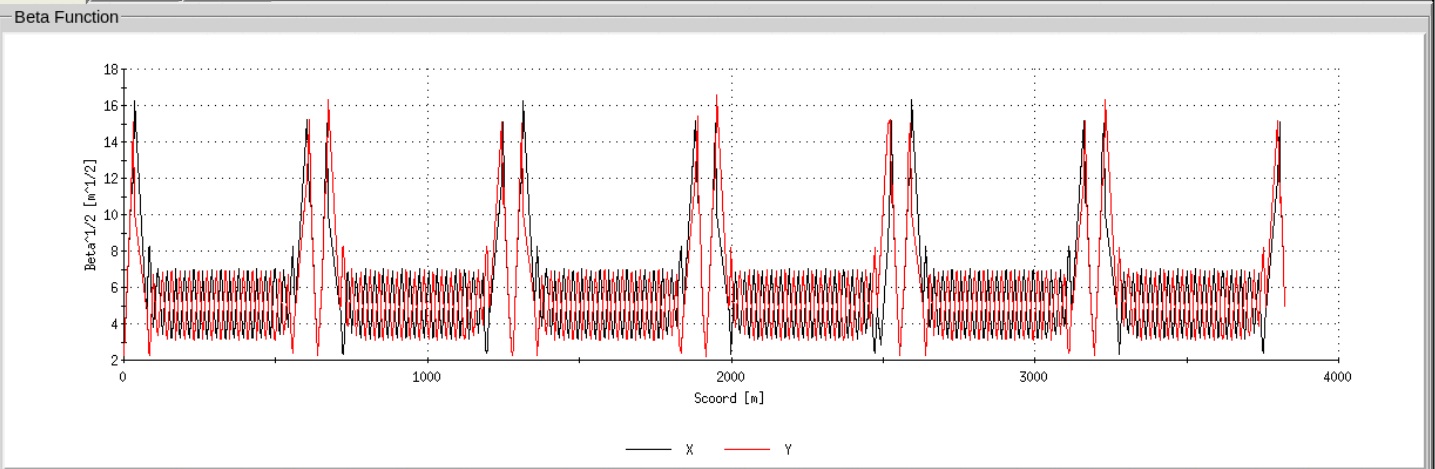
DipoleRamp BetaStar TuneChromPhase Lattice Optics Magnets Power Supplies

Stone: store

Tunes/Chroms

Stone #	13
Time [sec]	152
Gamma	28.5
BetaGamma	28.4824507373
Brho [T-m]	220.601178173
Qx	28.3519640533
Qy	29.2550438671
ChromX	6.3598327934
ChromY	2.44824428749
ChromX2	57.0565272093
ChromY2	288.419707167
ChromX3	-5451.13008624
ChromY3	938.452822339
GammaT	23.523876113

Save to SXF File...

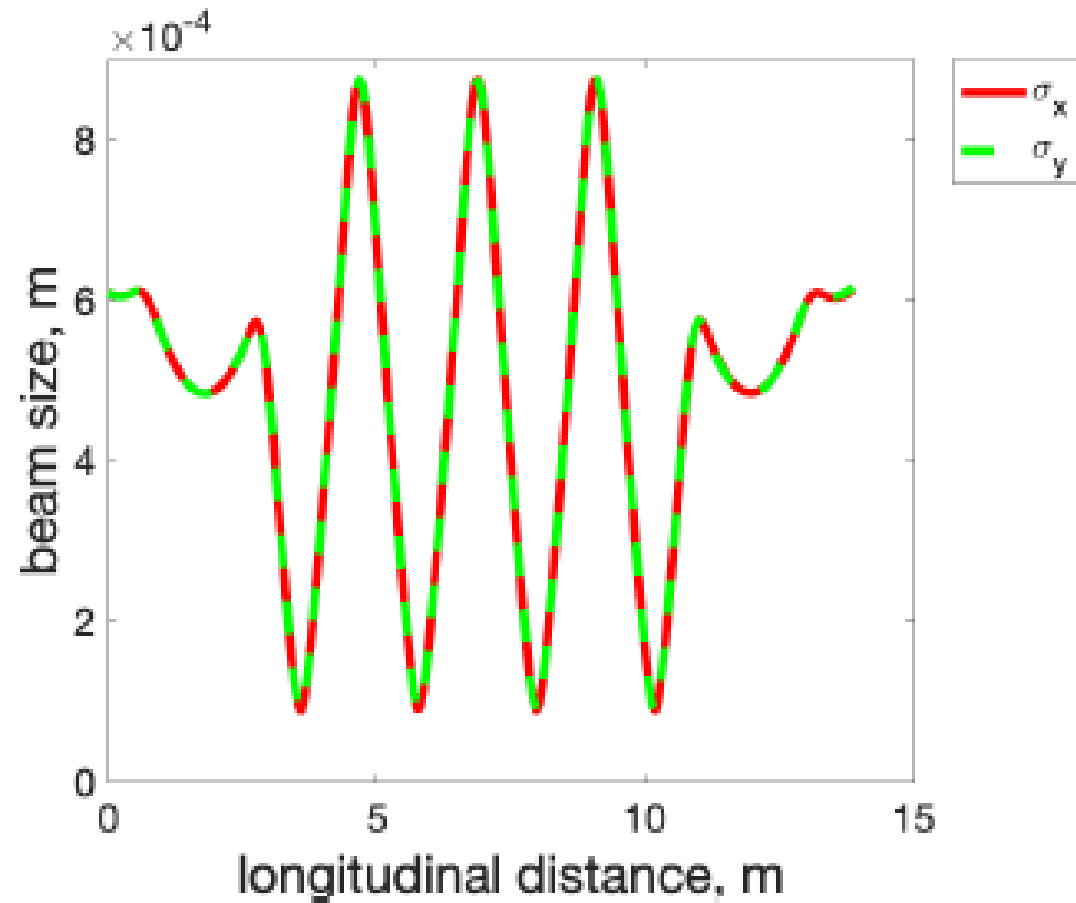


IP Parameters

Value/IP	IP6	IP8	IP10	IP12	IP2	IP4
BetaX [m]	5.11829405	4.96699402	5.14314875	4.98448289	5.09800515	4.98530623
BetaY [m]	4.97265401	5.06410217	5.01368741	4.92475215	4.97132326	5.07316697
AlphaX	-0.00799769708	0.0155910628	-0.00821666373	0.00498505476	-0.00882656501	0.0102729606
AlphaY	-0.00847228458	0.00179574307	-0.0209549257	-0.00835923206	0.00298737543	-0.00166233431
EtaX [m]	-0.00649427597	-0.0122030291	-0.0103121624	0.00570907446	0.00730791684	-0.00201522171
EtaY [m]	0	0	0	0	0	0
EtaX'	0.000591951846	-0.00176774147	0.00339198634	0.00132000677	0.00237635972	-0.00463261417
EtaY'	0	0	0	0	0	0

Inform -- Getting the data...
 Inform -- Getting the data...

Electron beam size (rms) at cooling section



(a) Beam size

Cooling simulation with simplified CeC parameters (He Zhao)

- 6m cooling section at modulator/kicker (drift, no solenoids)
- Square e-beam (full width=60 ps)
- $dp/p_e=5e-4$, $emitt_e=1.053e-7$ um

Rate	hori. (um/s)	vert. (um/s)	long. (m/s)	($d\epsilon/dt$, $d\sigma/dt$)
only IBS	9.09E-07	3.50E-07	1.53E-05	
IBS+cooling	1.64E-06	6.60E-07	1.21E-05	
emitt0/bunch0	0.085 um	0.087 um	1.0425 m	
Cooling rate	8.43E-06	3.65E-06	-3.07E-06	1/s
Cooling time	32.19	76.01	-90.39	hour

