





Beam Parameters for FLUTE

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Machine Layout



Parameters	Unit	Value	Charge	Bunch Length	Energy/
Bunch charge	nC	10 ⁻³ –3		(rms) [fs]	Pulse
Bunch length	fs	1–270	3 nC	270 fs	~1 mJ
Peak electric field	MV/m	~500	100 pC	67 fs	~5 µJ
Spectral range	THz	0.5–8	1 pC	~10 fs	~4 nJ
Electron Energy	MeV	~42		Simulated	
Pulse repetition Rate	Hz	10			

M. Schwarz - Beam Parameters for FLUTE



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100 pC



3 nC



3 2nd Workshop of Longitudinal Beam Diagnostics

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Simulated Transverse Beam Size



100 pC

 σ_x

Gun Cavitv

Quadrupole Magnet

Dipole Magnet

I inac

1.6

1.4

1.2

1

0.8

0.6

0.4

0.2

Transverse Bunch Size / mm

1 pC

σ,

Gun Cavity

Quadrupole Magnet

Dipole Magnet

Linac

Montag, 11. November 2013

0.8

0.7

0.6

0.5

0.4

0.3

0.2

0.1

Transverse Bunch Size / mm



Simulated Longitudinal Energy Spread

1 pC

0.5

0.45



100 pC

1.1

1