

Update on Painting and RF

For the basic scenario the beam is not injected into SPS so we can relax the constraint on longitudinal emittance after injection

-> As low as possible to decrease the peak voltage

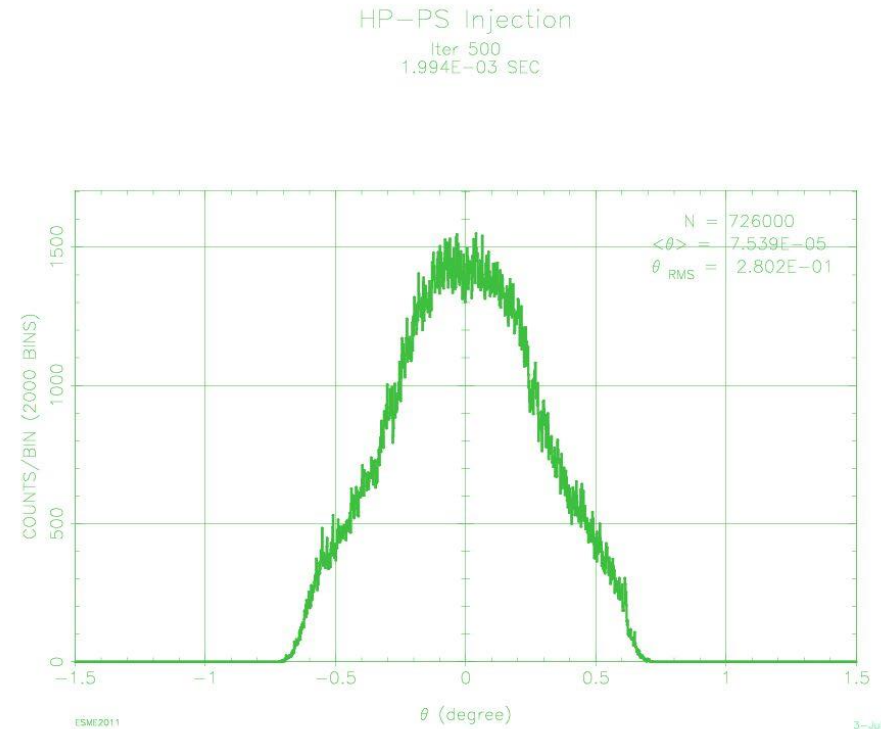
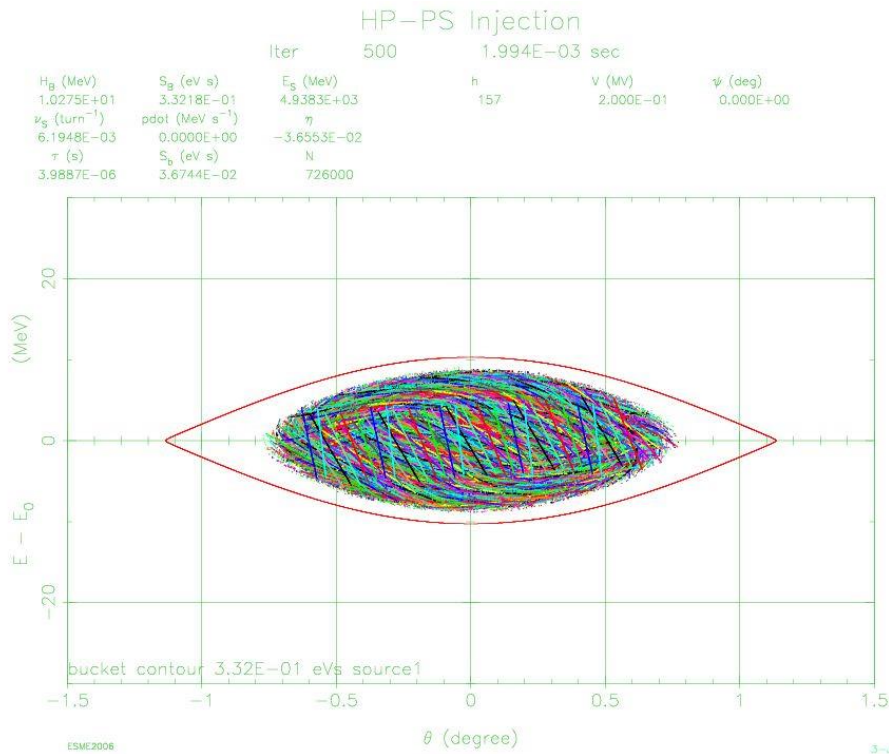
In case of injection of LHC-beam into SPS, some constraints have to be respected :

long. emittance not less than 0.35 eV.s but not higher...

bunch length below 4ns at extraction

Painting for basic scenario

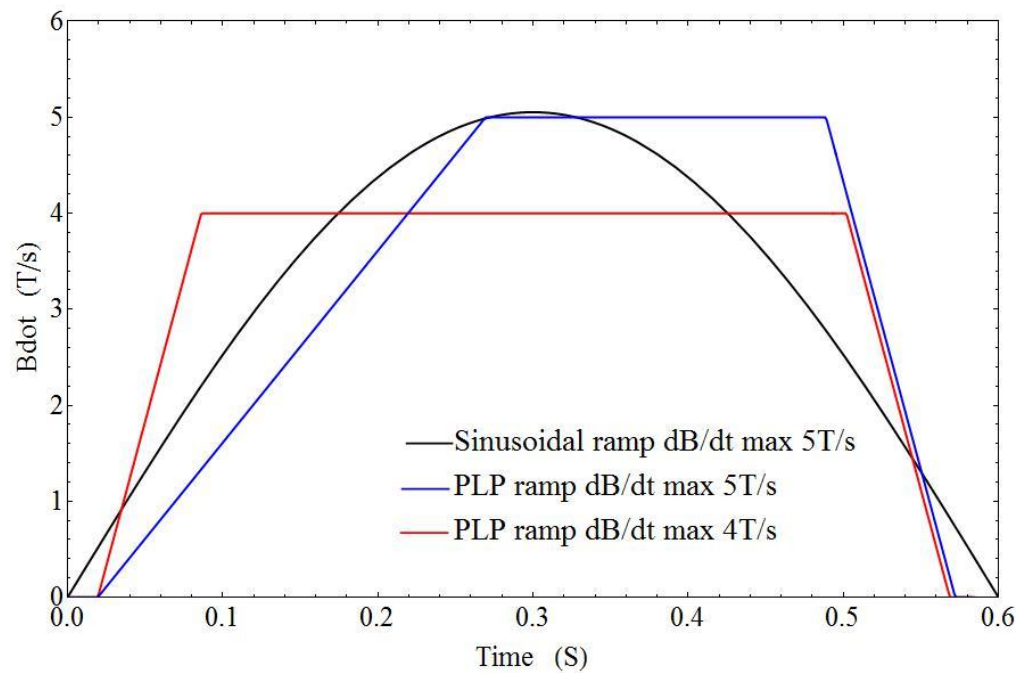
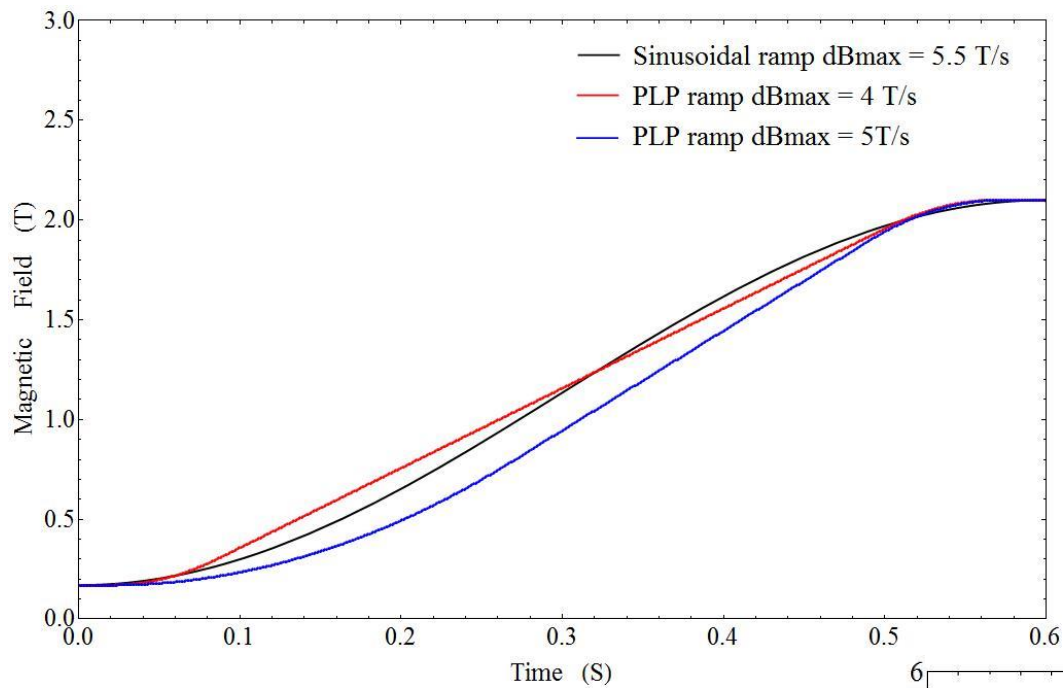
If no particular constraint on emittance the voltage can be hugely reduced... And energy offset is not necessary anymore.

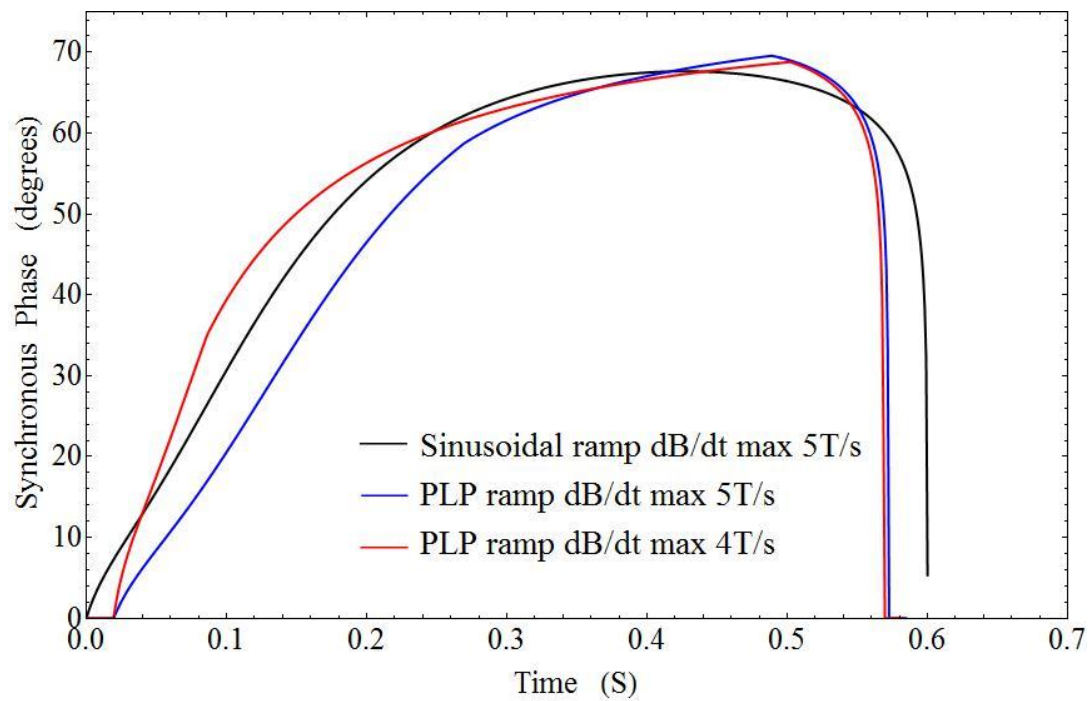
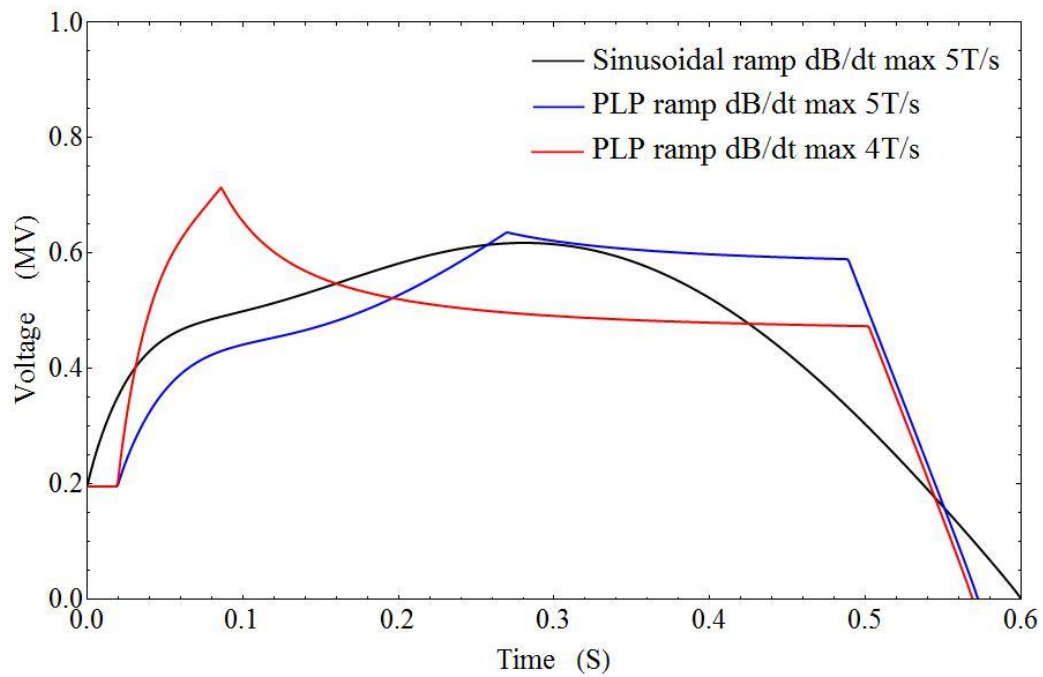


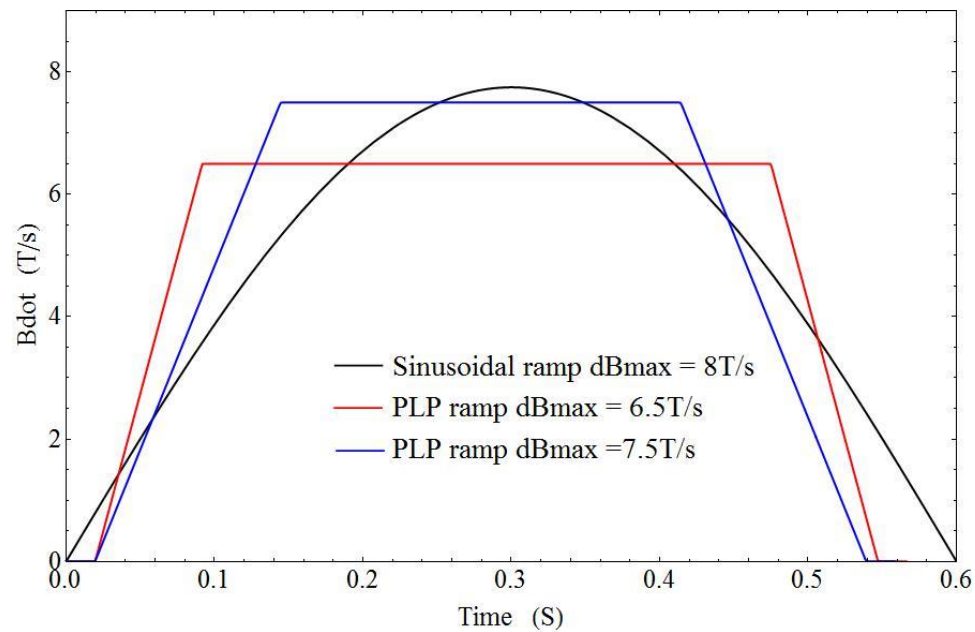
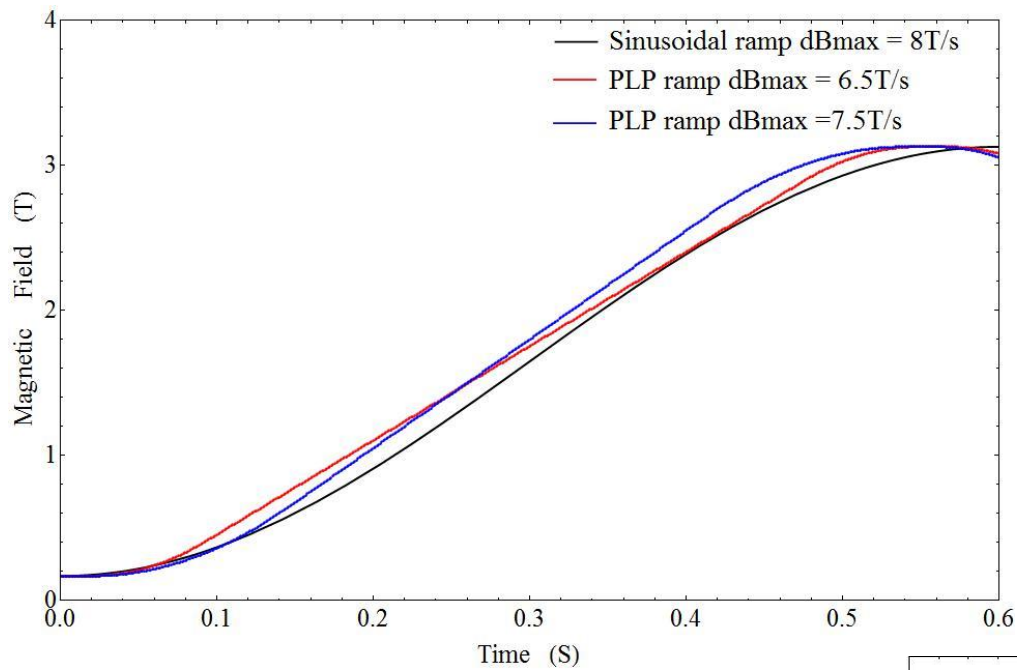
500 injected turns, 200 kV in cavities, $\epsilon_1 \sim 0.24$ eV.s

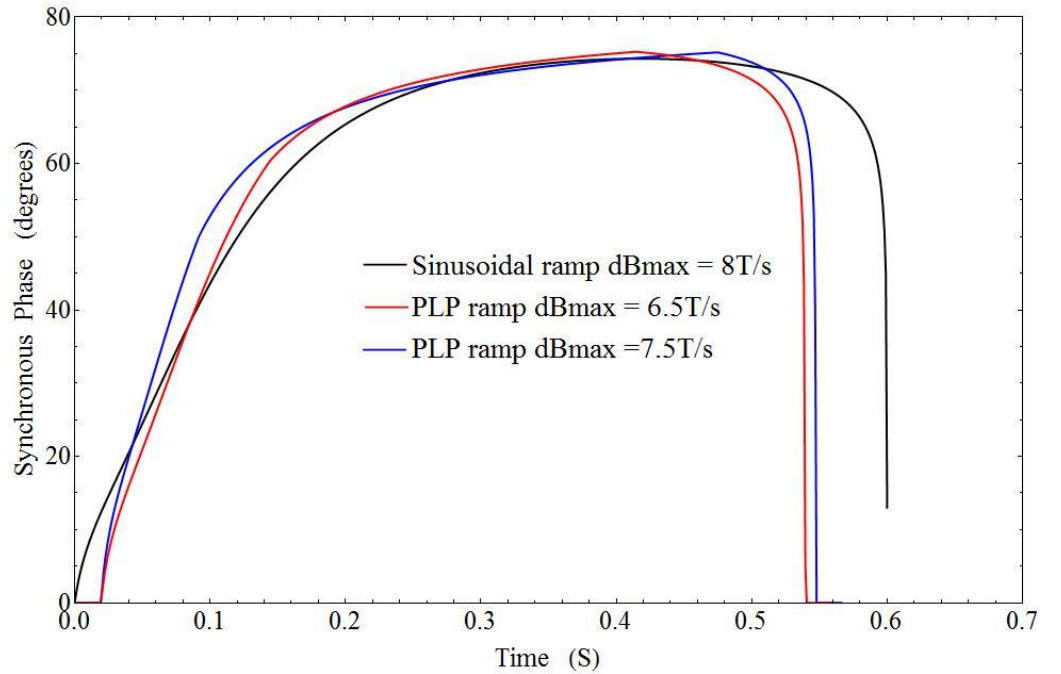
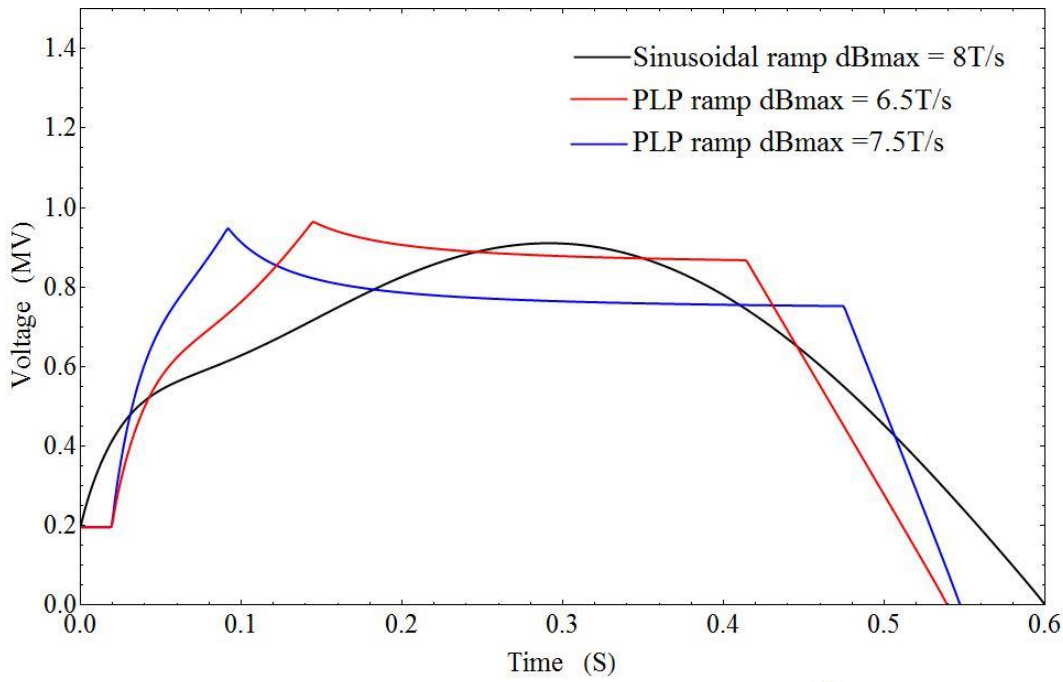
Acceleration for basic scenario

50 GeV







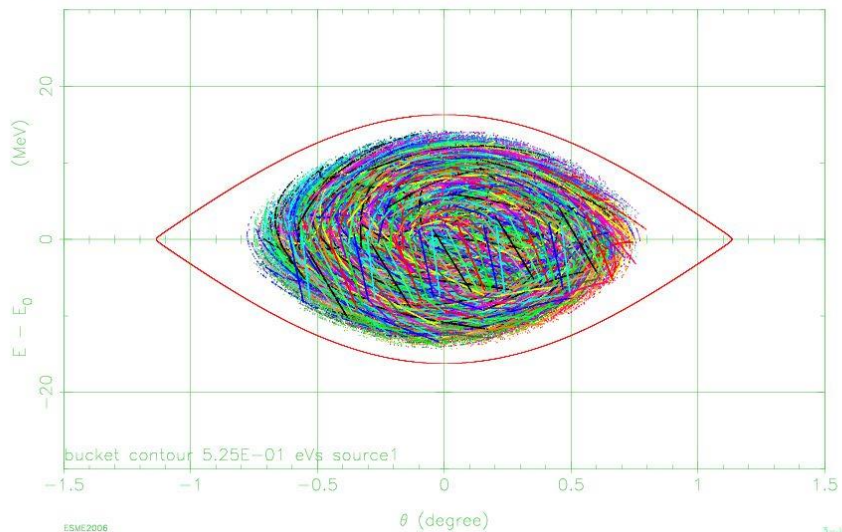


Painting for LHC option

Designed for 0.35 eV.s emittance after injection.

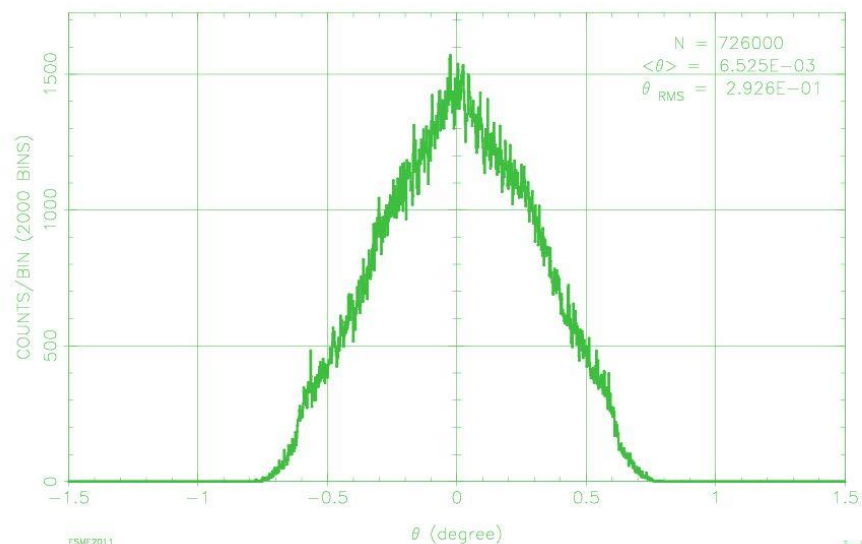
HP-PS Injection

Iter	500	1.994E-03 sec			
H_B (MeV)	S_B (eV s)	F_S (MeV)	h	V (MV)	ψ (deg)
1.6247E+01	5.2522E-01	4.9383E+03	157	5.000E-01	0.000E+00
ν_B (turn $^{-1}$)	$pdol$ (MeV s $^{-1}$)	η			
9.7949E-03	0.0000E+00	-3.6553E-02			
τ (s)	S_B (eV s)	N			
3.9887E-06	5.8179E-02	726000			



HP-PS Injection

Iter 500
1.994E-03 SEC



Acceleration for LHC beam

50 GeV

