



TILC09 GDE Parallel DR Session

Cesr TA 2 hours : Electron Cloud , low emittance tuning, ---

ATF DR 2 hours (including BPM circuit upgrade plan from FNAL)
Fast kicker test, fast ion study, low emittance tuning, ---

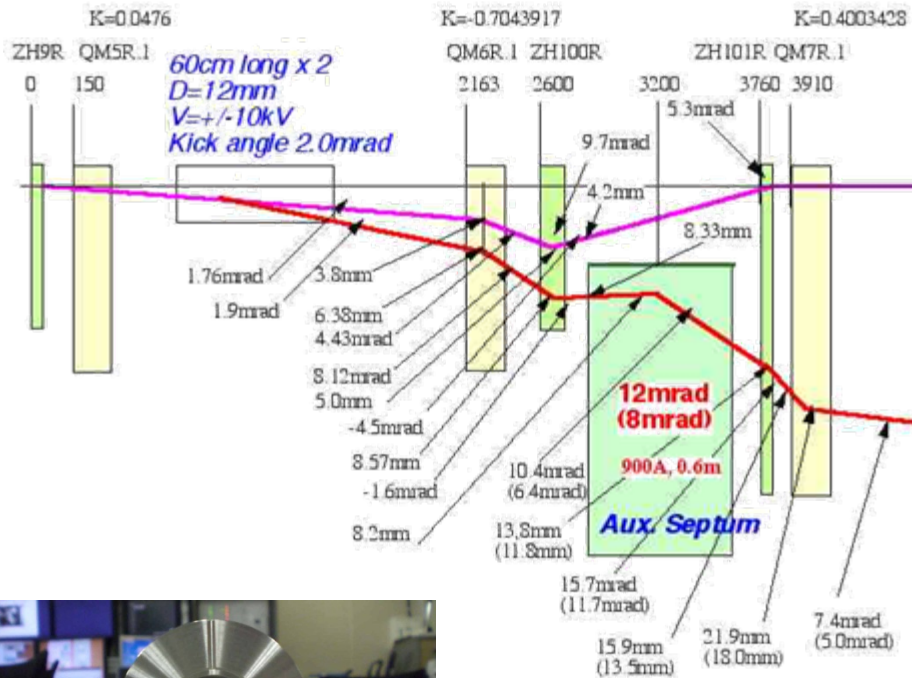
CI WebEx by Andy (Vacuum design – wake fields – low emittance tuning)

SLAC WebEx by Craig (Fast Kicker Pulser Development at SLAC)

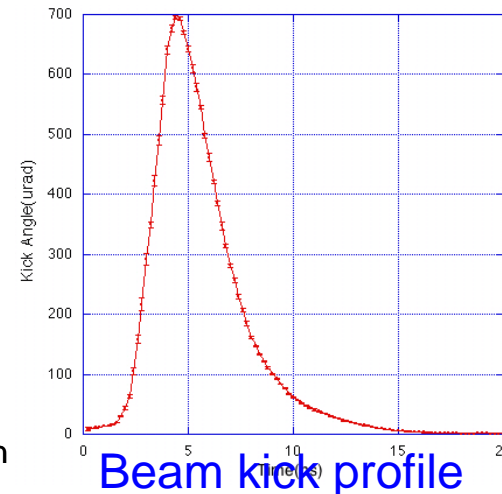
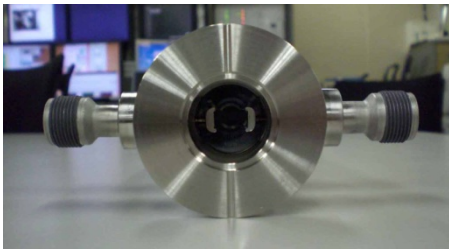
INFN, strip line kicker design, ----

LBNL WebEx, electron cloud simulation, ----

Fast kicker development

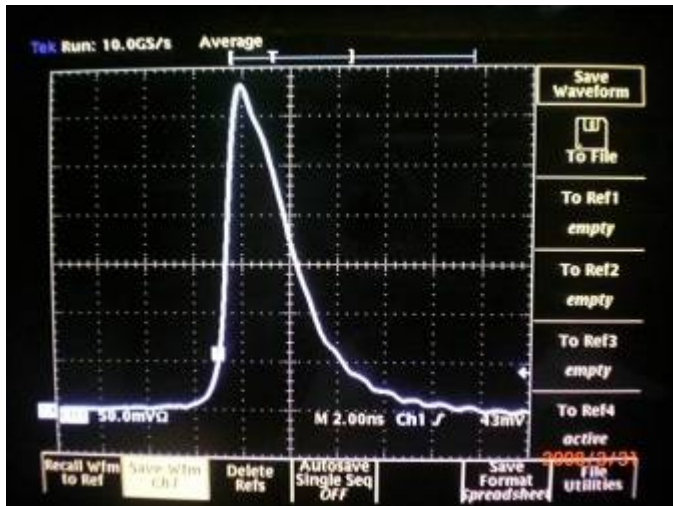


The beam extraction design from DR to the extraction line and the preliminary beam test in DR was carried out. To solve the geometrical restriction, the design includes a pulse bump system and an auxiliary septum magnet. The drawing shows the orbit of the circular bunches and the extracted beam. The test strip-line electrode (30cm long) was fabricated (see pictures). The beam kick test in DR measured 0.7mrad of the kick angle by using ±10kV pulse generator, which is enough to get 2mrad by using 2 units of the pulse generator and 60cm long strip-line. The pulse bump orbit was tested and the auxiliary septum was fabricated.



Fast Kicker R&D at ATF

Pulser: FID FPG 10-6000KN



Maximum output voltage	10 kV
Rise time, 10 – 90%	< 1 ns
Rise time, 5 – 95%	< 1.2 ns
Pulse duration at 90% peak amplitude	0.2 – 0.3 ns
Pulse duration at 50% peak amplitude	1.5 – 2.0 ns
Output pulse amplitude stability	< 0.7%
Maximum pulse repetition frequency	6.5 MHz
Number of pulses per burst	110 (max)
Burst repetition frequency	5 Hz

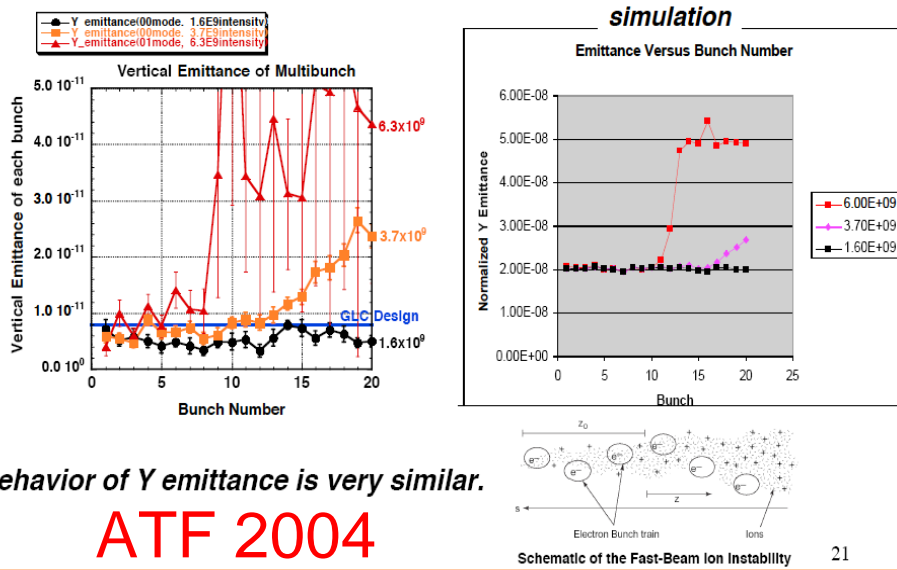
Beam extraction test: January 2009, this failed due to broken pulsers by high level radiation near extraction area.

After we will repair the pulsers and install them behind concrete shield block, beam extraction test will be done again in this year (May).

We are preparing good cables, and then we will measure the effect of the cables in this April.

Study on the fast ion instability at ATF

Preliminary result of Fast Ion Instability simulation



- Distinguish the two ion effects: beam size blow-up and dipole instability.
- Quantify the beam instability growth time, tune shift and bunch train gap effect
- Provide detailed data to benchmark simulations with experiment.

In this week, we measured 12-20pm vertical emittance by X-SR and have to confirm this value by laser wire. When we will get the stable beam with low emittance less than 10pm, We will do the fast ion study again, April or May.

2009/3/23

