

NSLS-II BOOSTER RAMP HANDLING

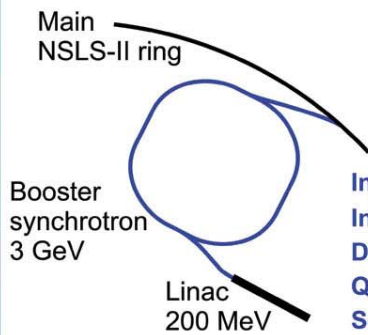


P. Cheblakov, A. Derbenev, R. Kadyrov, S. Karnaev,
S. Serednyakov, E. Simonov, BINP, Russia



T. Shaftan, Y. Tian,
BNL, USA

BOOSTER PARAMETERS



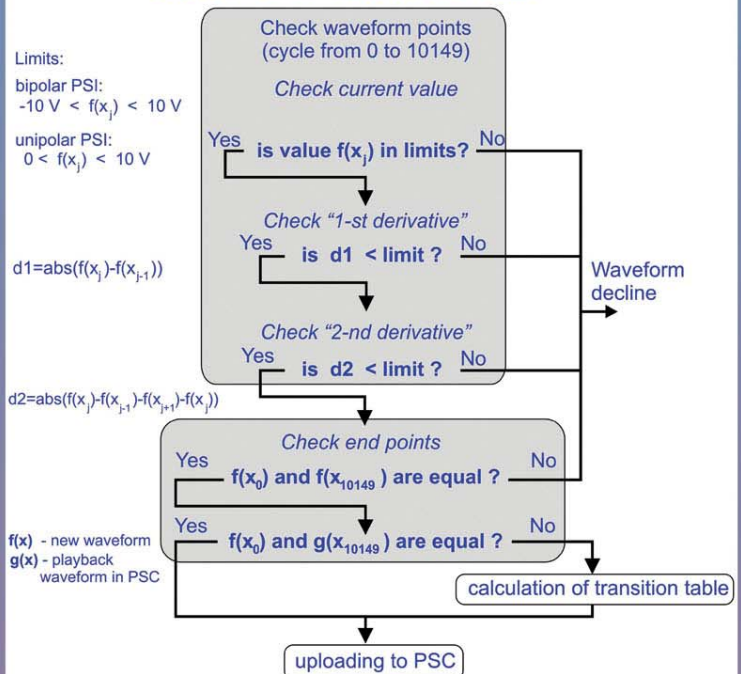
Cycle frequency: 1 / 2 Hz
Circumference: 158.4 m
(264 RF separatrices)
Current: 20 mA (100 bunches)
Bunch number: 1 / 80 - 150
Acceleration time: 300 msec
Injection: single / double in 100 msec
Inj/Extr pulsed power supplies: 9
Dipoles: combine functions, 3 families
Quadrupoles: 3 families
Sextupoles: 8 + 8
Correctors: 20 X-, 16 Y-direction

REQUIREMENTS FOR RAMP CONTROL

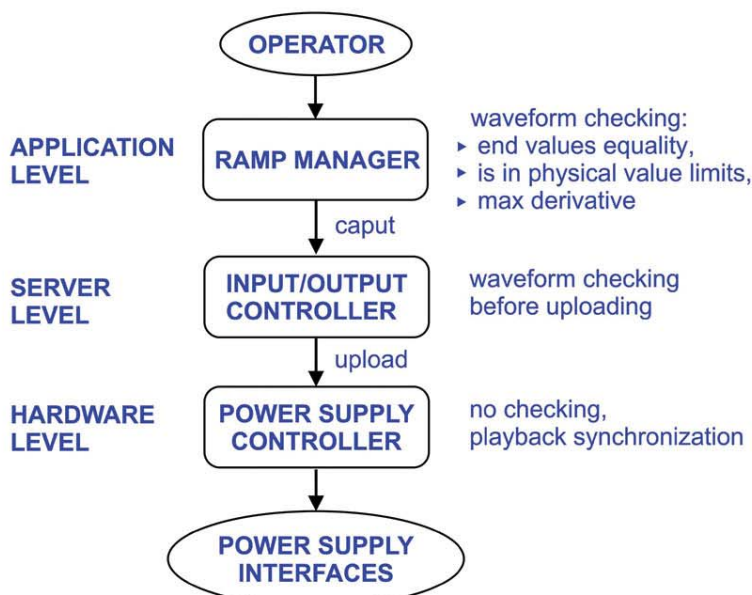
- ▶ 10 kHz setting of the reference voltage
- ▶ Dipole, quadrupole and RF waveforms should be matched
- ▶ 10^{-3} relative matching accuracy of ramping waveforms of main magnetic elements during the beam ramp
- ▶ No jumps of 1-st and 2-nd derivatives in dipole and quadrupole PSs waveforms
- ▶ Changing the reference voltage for injection kickers in 100 ms interval

IOC FUNCTIONS

CHECKING OF NEW WAVEFORM



HANDLING SEQUENCE



RAMP MANAGER

RAMP MANAGER MAIN FEATURES

operations with waveforms:

- ▶ edition in polynomial and table format
- ▶ graphical edition
- ▶ individual and group copying
- ▶ rescaling

visualization:

- ▶ plot selected waveforms in one graph
- ▶ plot selected readbacks in one graph
- ▶ plot 1-st and 2-nd derivatives

control operations:

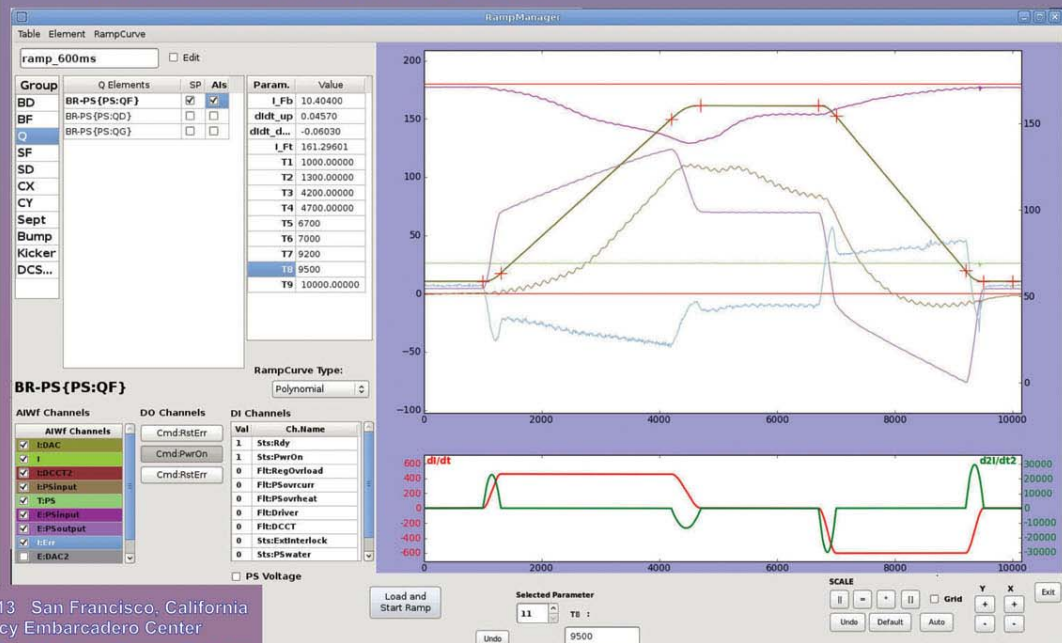
- ▶ upload selected waveforms to PVs
- ▶ perform scenarios (RF control, switch ON/OFF operations)

save/restore operations:

- ▶ individual and group save/restore
- ▶ export/import to/from text format

undo operations:

- ▶ manipulations with graph
- ▶ waveform edition



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The Hyatt Regency Embarcadero Center
e-mail: p.b.cheblakov@gmail.com