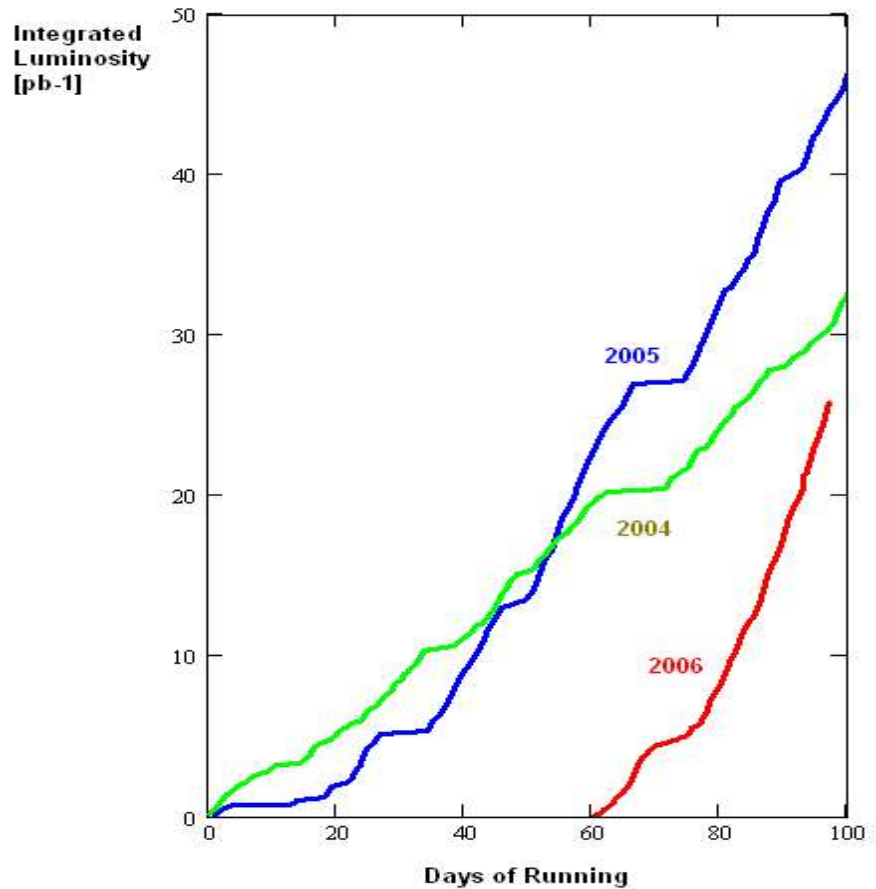


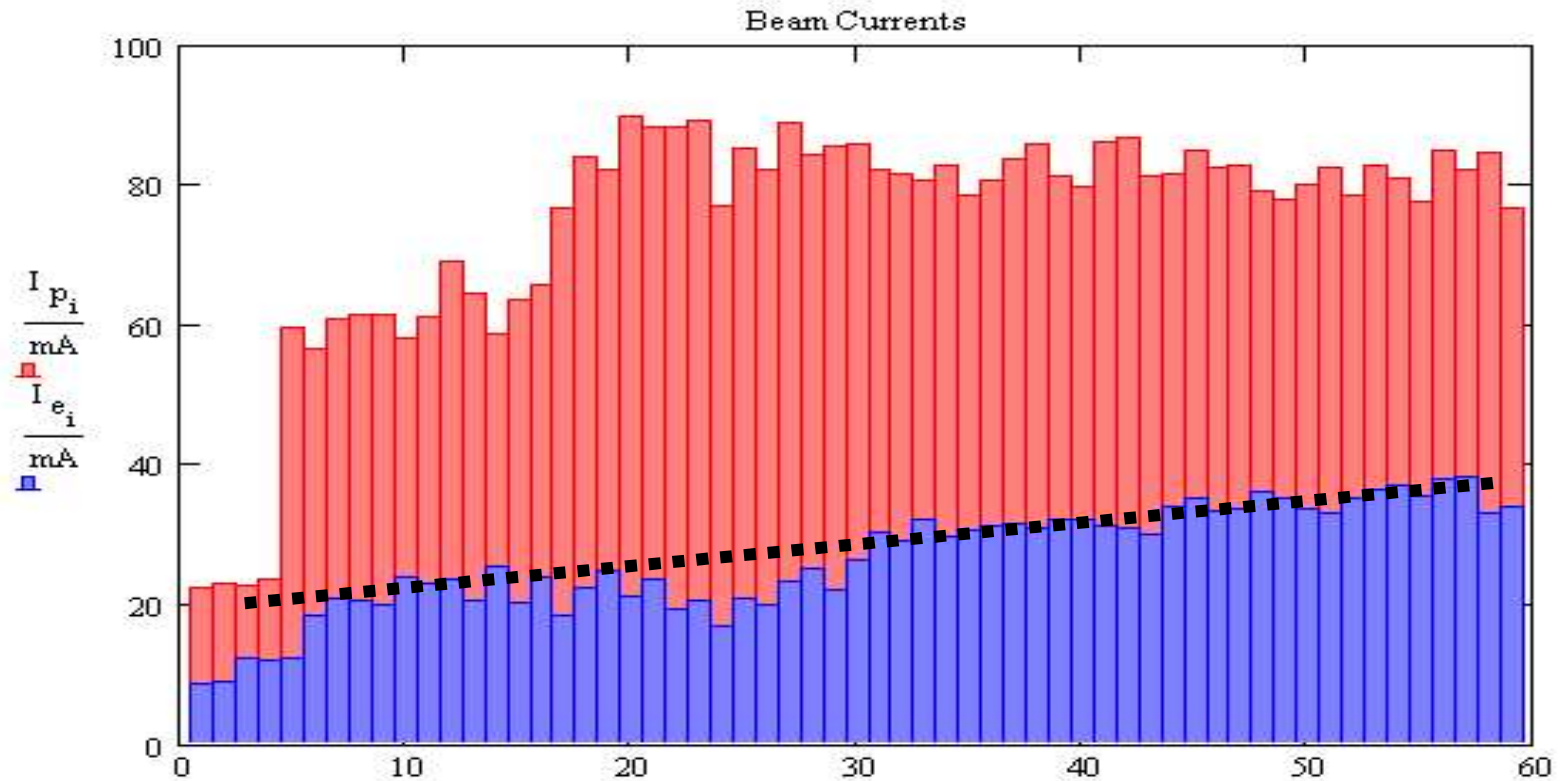
HERA Status March 2006

HERA-Experiments-Coordination March 28, 2006
F. Willeke, DESY

- Luminosity
- Polarization
- Operations
- Developments
- Plans



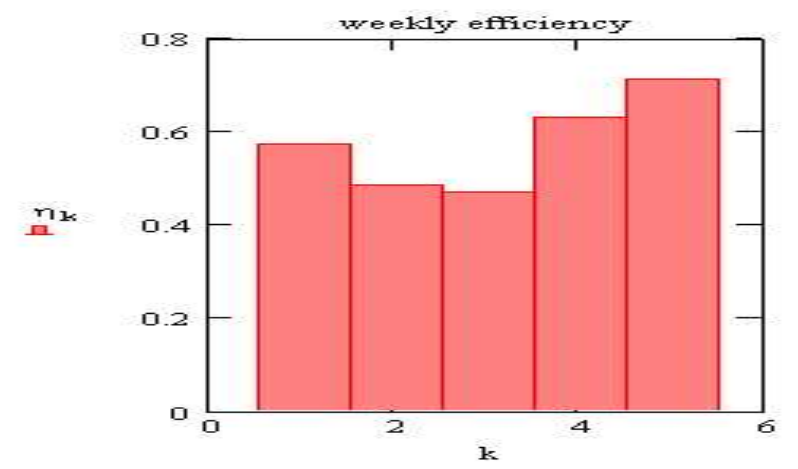
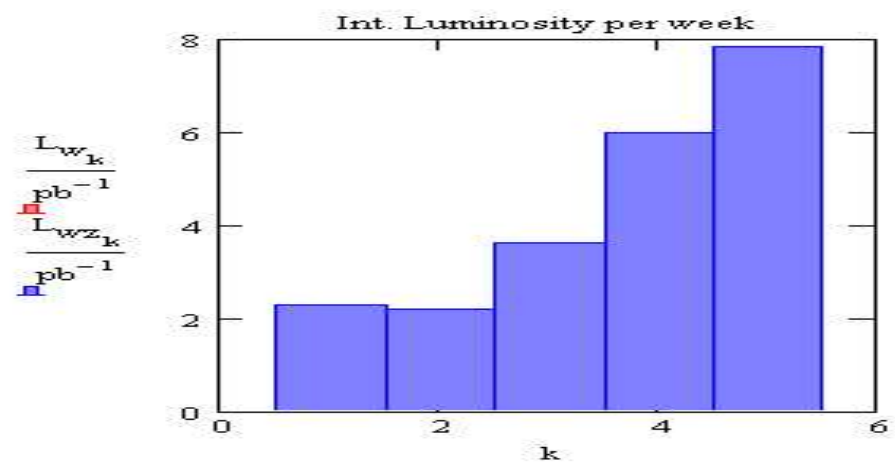
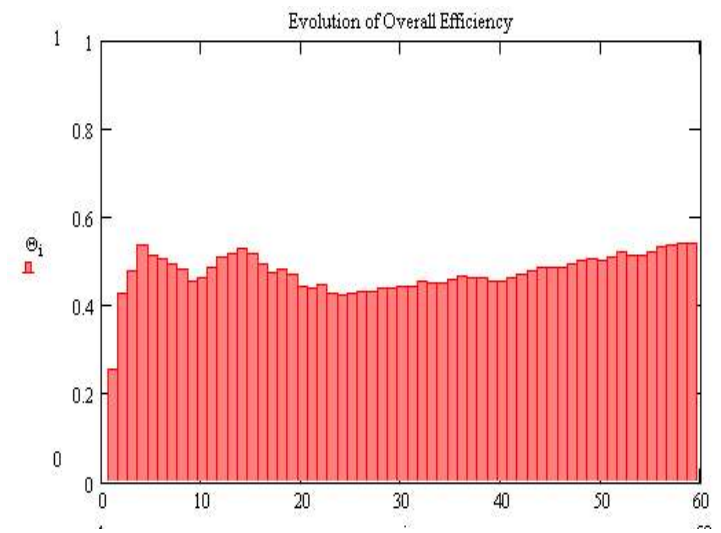
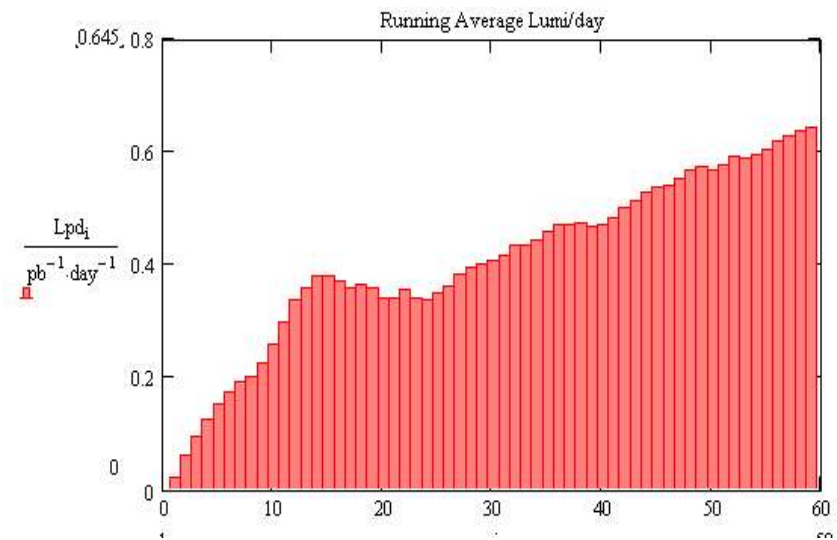
Beam Currents



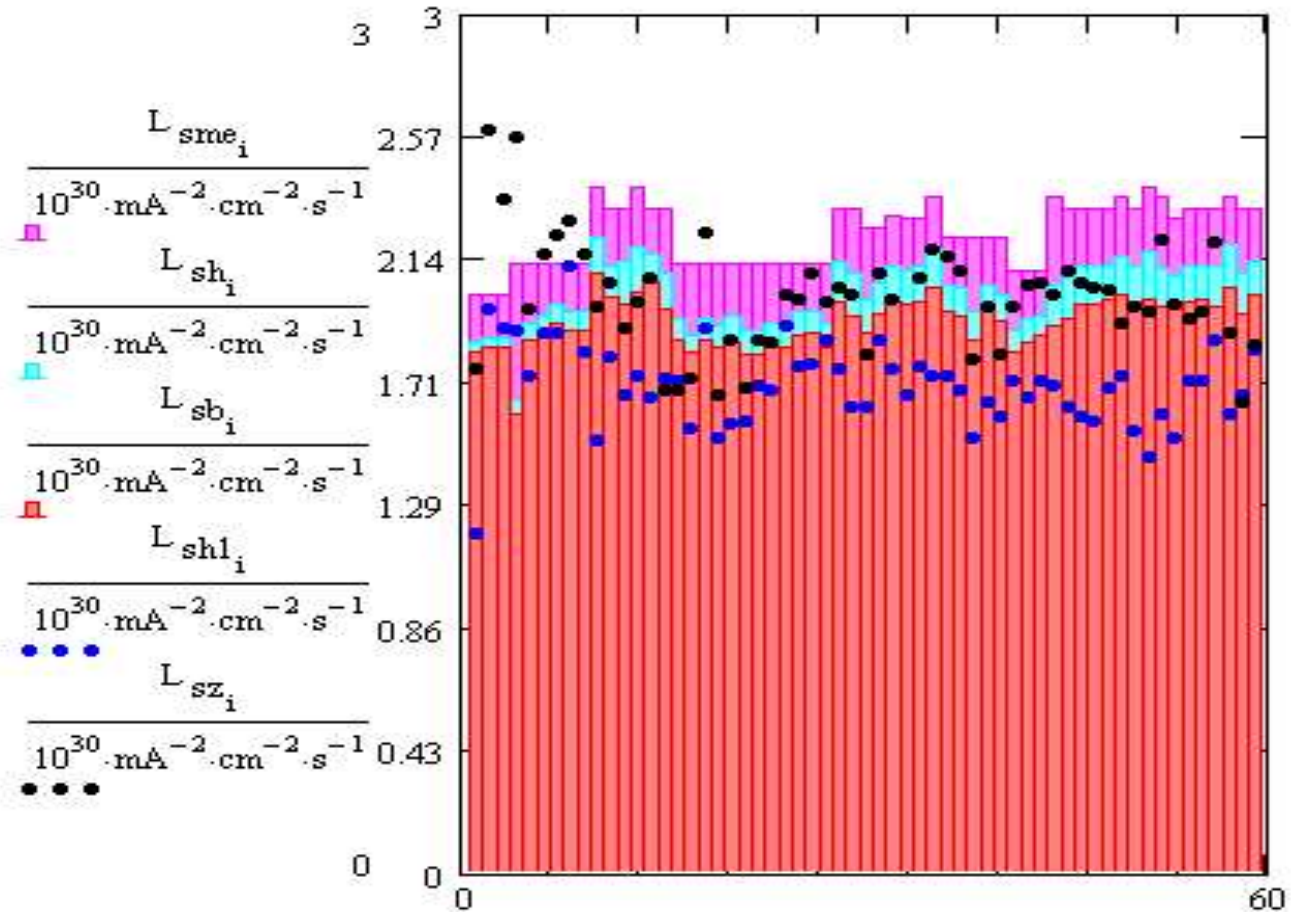
RF conditioning during injection seems to be successful so far

→ get to 39mA positron current quickly

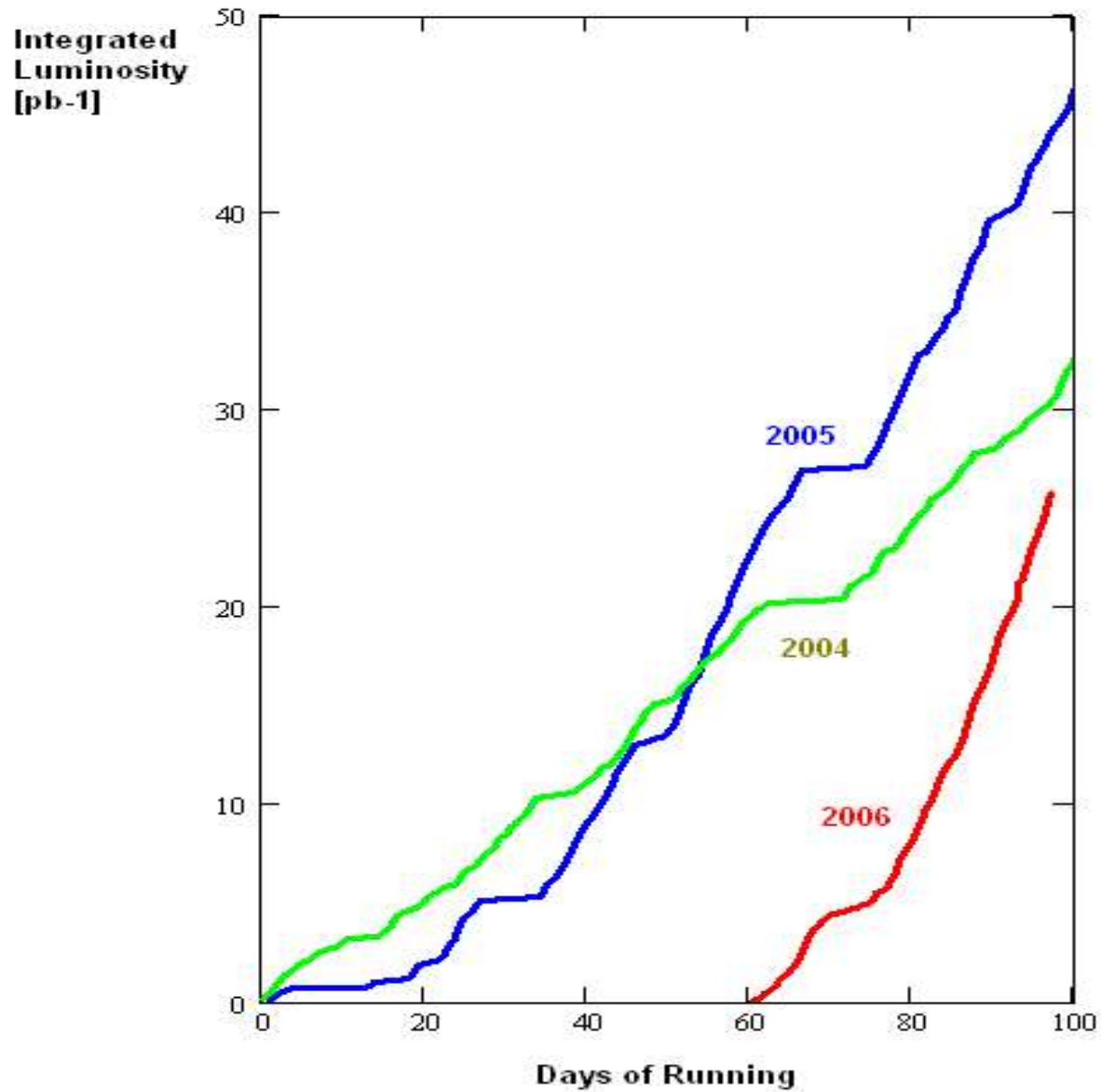
Efficiency



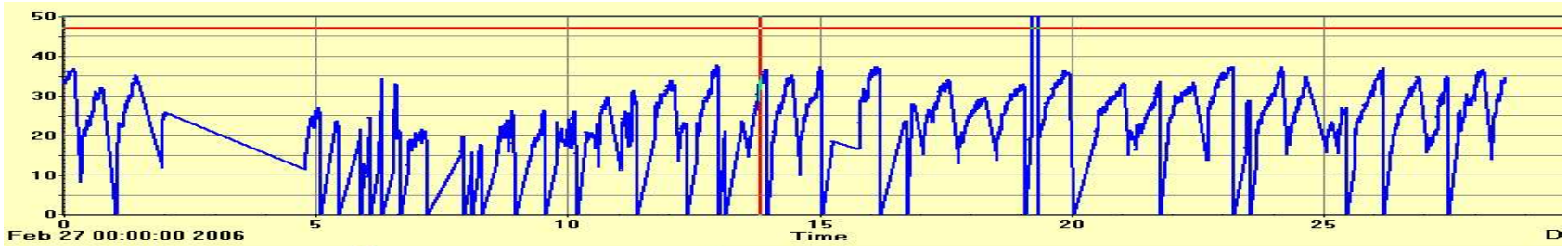
Specific Luminosities



Luminosity Production

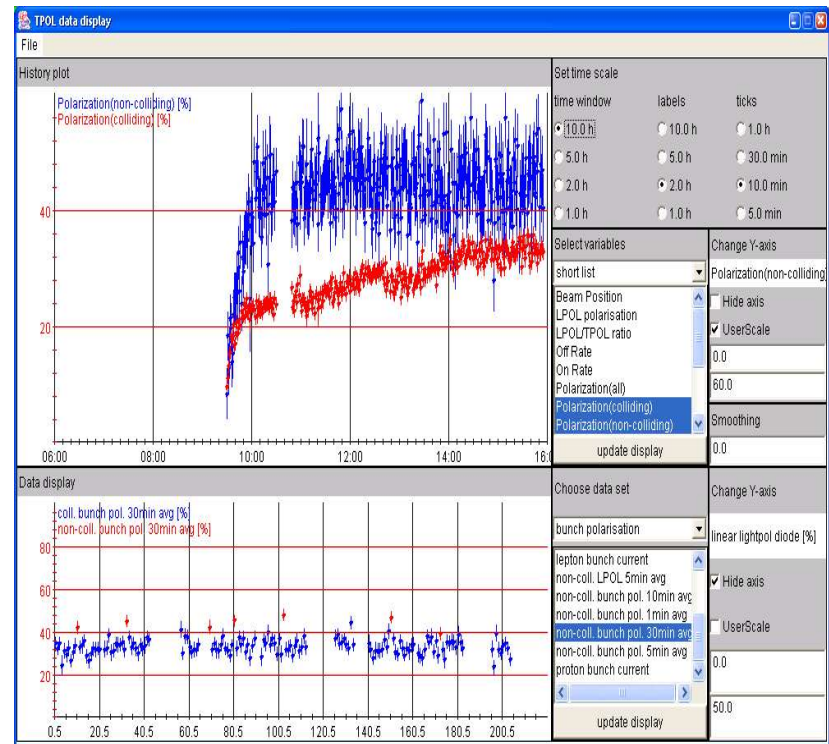


Polarisation



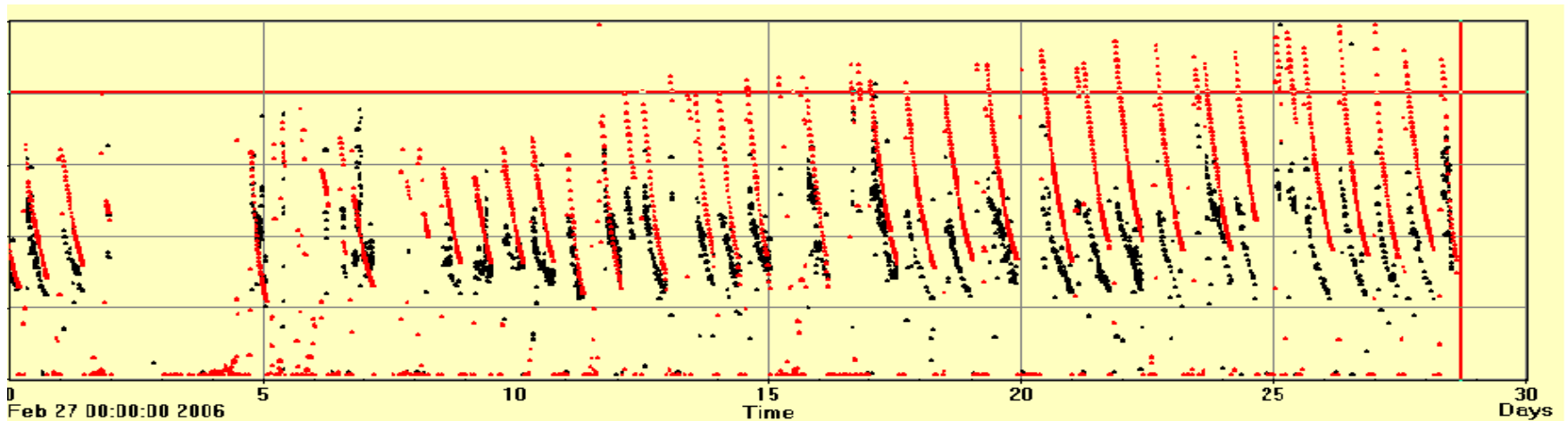
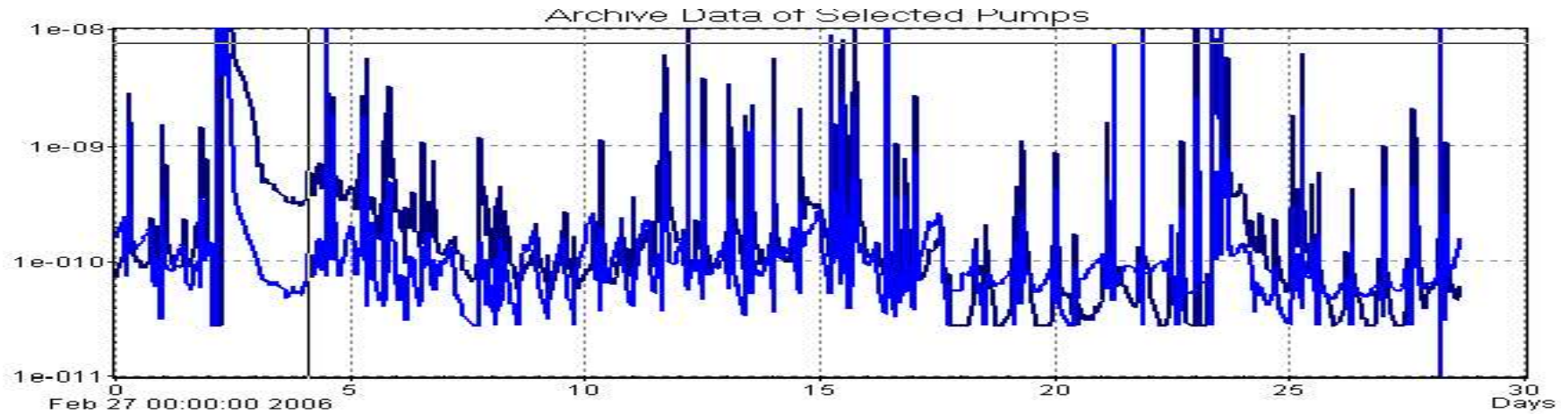
No change w.r.t. last year
30-40 % for the colliding,
good polarization for non-
colliding bunches

Machine interested in
flipping rotators one-by-one
starting at next maintenance
day



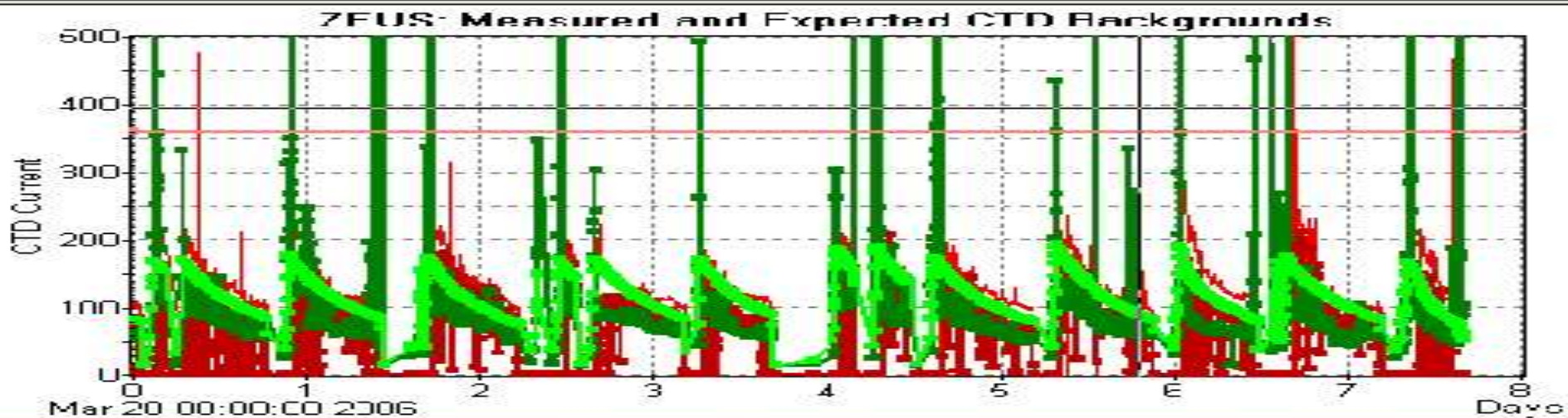
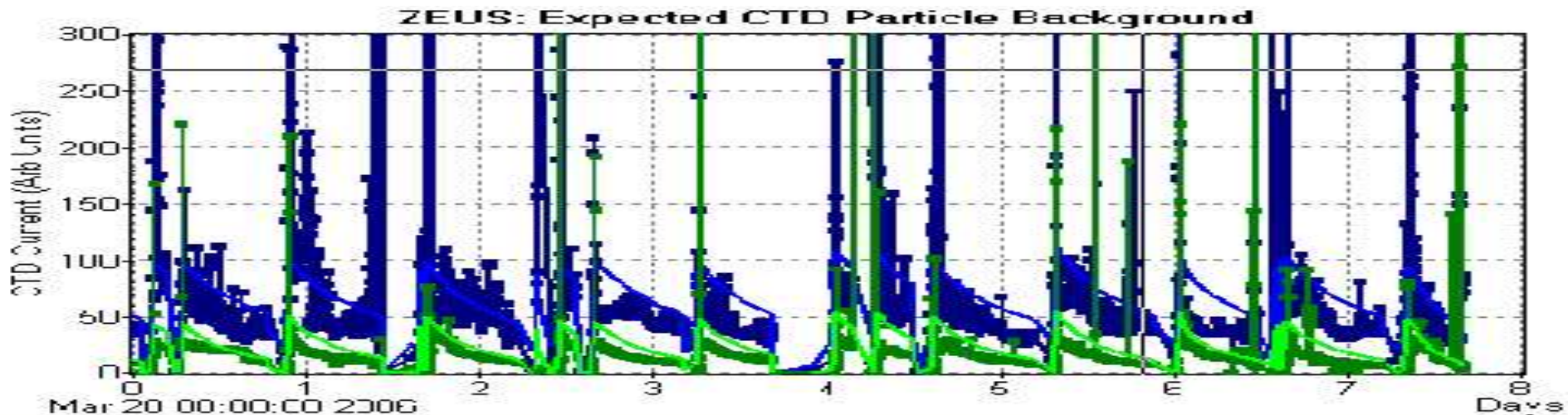
H1 Backgrounds:

➔ Quick recovery of IR vacuum and gas induced p-backgrounds



ZEUS p Backgrounds:

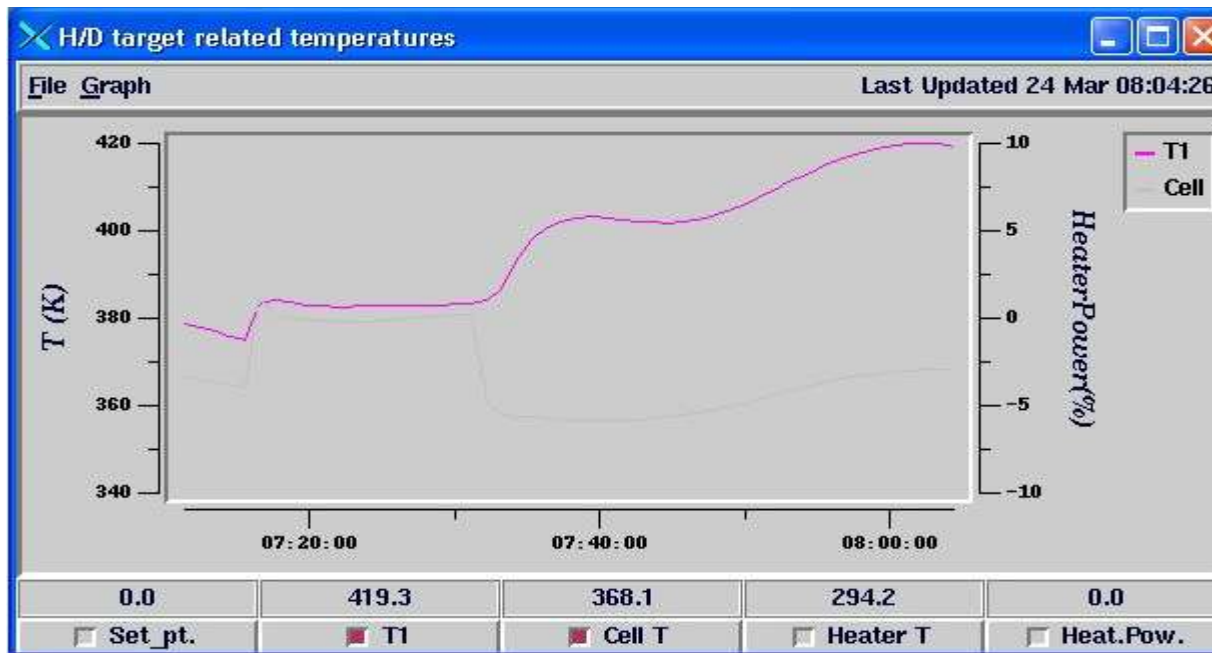
improved by using complementary collimator set



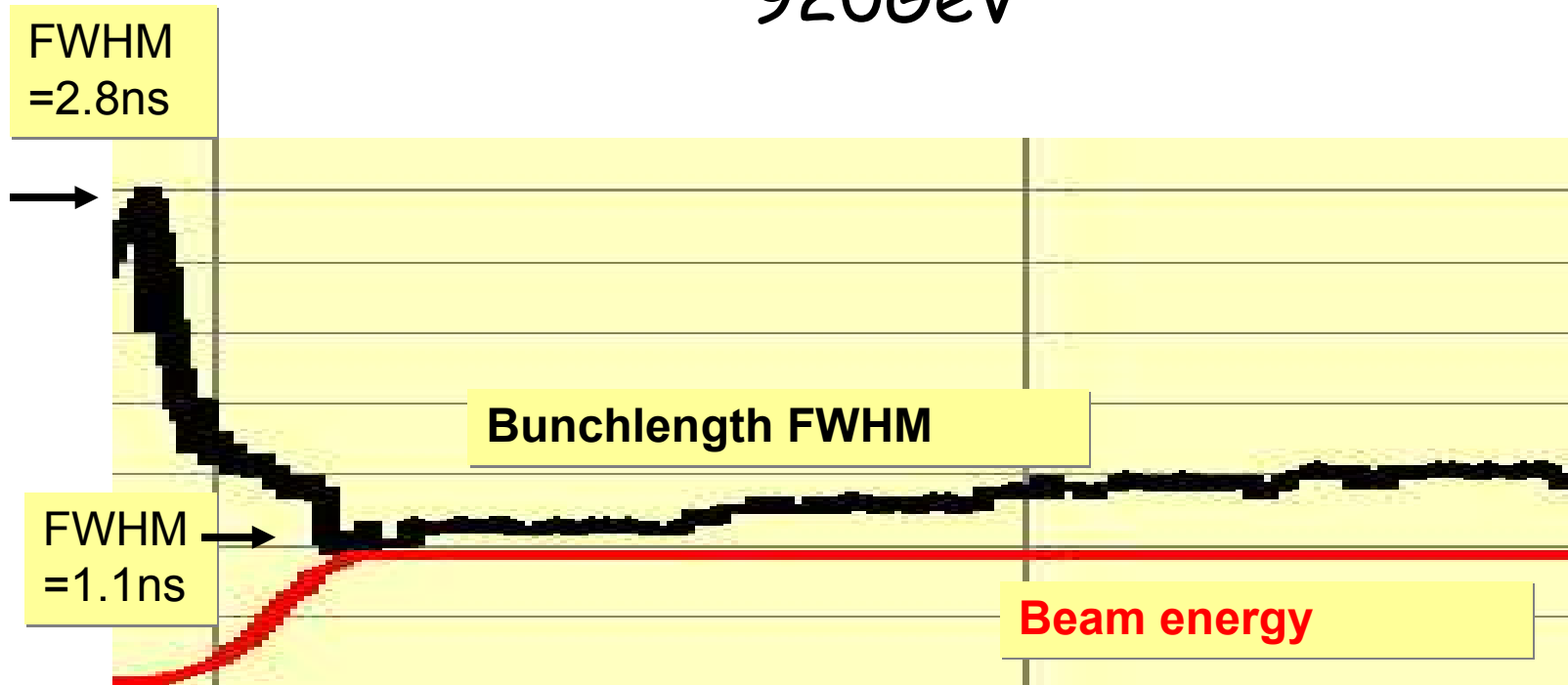
HERMES Target Cell

new target cell is heating up due to HOML's during 12GeV positron injection
→ limits e beam intensity at present (~39mA)

Synchrotron Radiation heating at 27.5GeV?



Successful commissioning of longitudinal broad band damper system → short bunches (1ns) at 920GeV

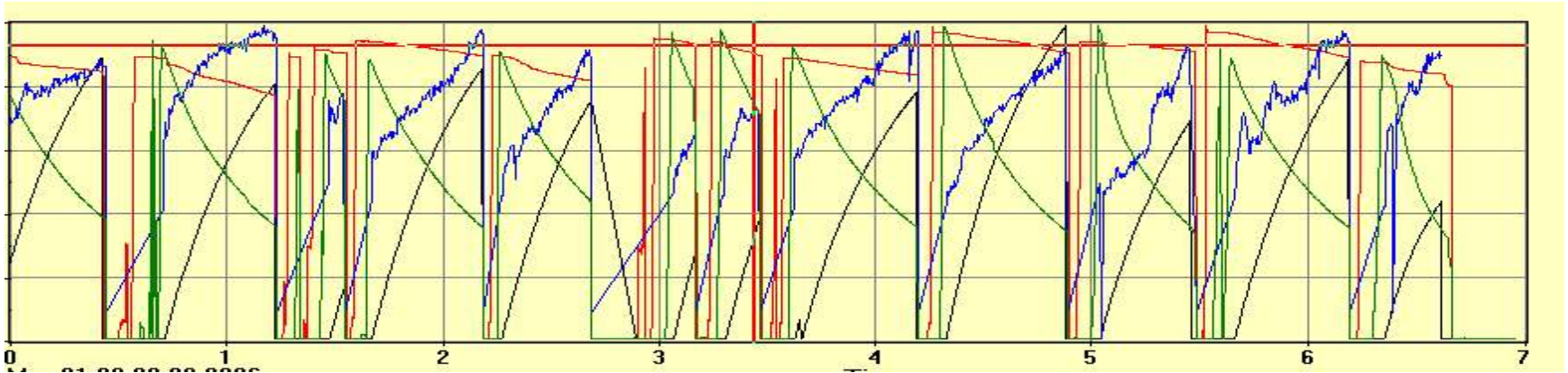


Enhanced emittance growth (**IBS, RF noise**)

→ Need more RF voltage

Factor of 2 reserve available → needs more work

HERA Week #12 2006



Intergrated Luminosity: 7.9 pb^{-1} (Z), Peak : $L_p 4.68 \cdot 10^{31} \text{ cm}^{-2} \text{ s}^{-1}$

Efficiency: 73%

ZEUS Background problems reduced

Only minor technical problems

Further Plans

- Consolidate operations with high beam currents (>40mA positrons, 100mA protons) and high specific luminosity
- Prepare luminosity optics with $\beta_{xp}:2.30$, $\beta_{yp}=16\text{cm}$ (& matched e-beam)
- Use long feedback in routine operation
- Increase RF Voltage by a factor of 2
- Increase the number of bunches to **180** to raise the intensity limitation by the HERMES target cell
- Explore injection with frequency offset.
- Maintenance day April 5 with IR warm-up North (and South?)