

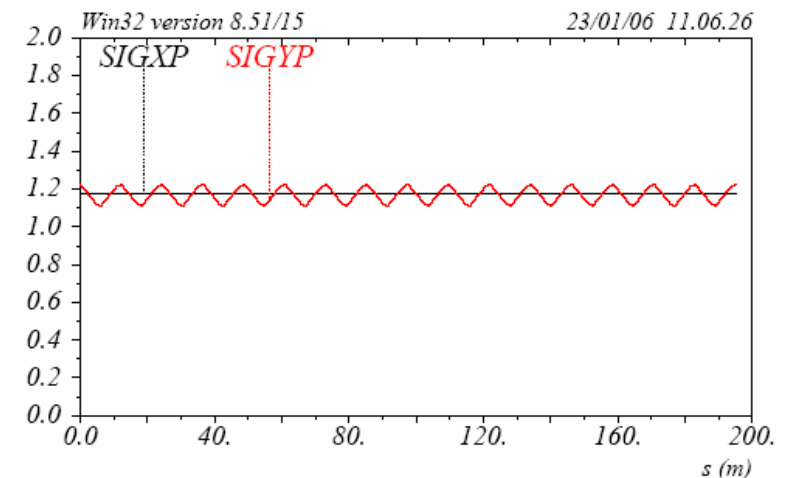
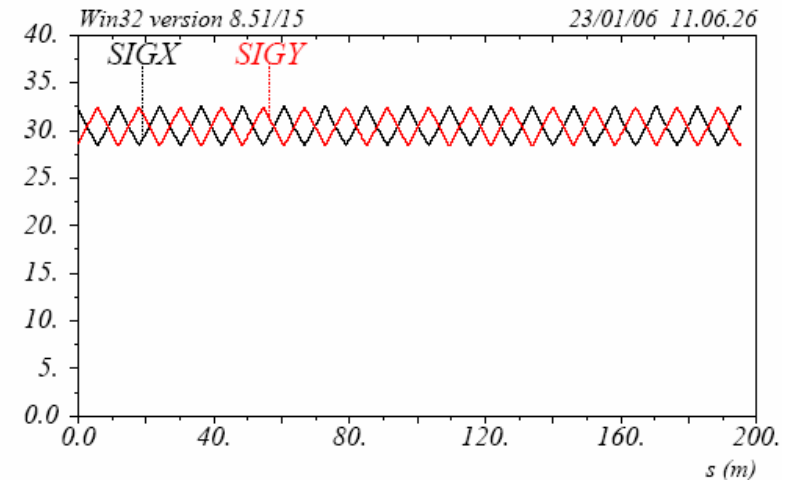
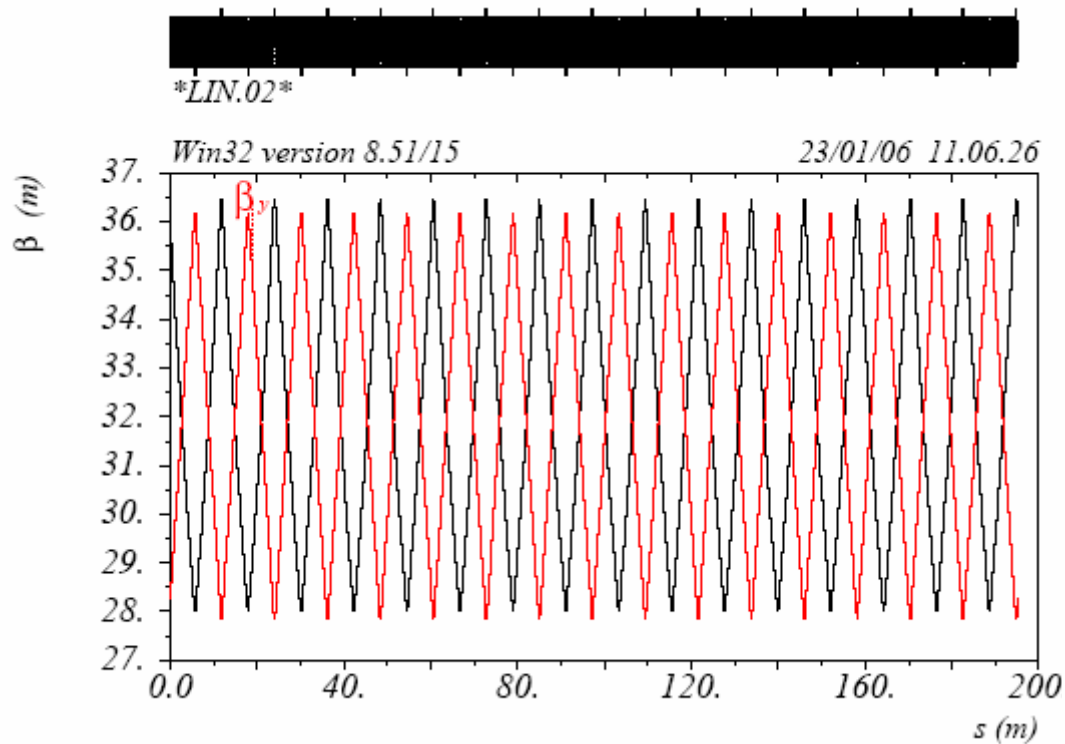
# Tolerances in the Undulator

Winni Decking

XFEL Beam Dynamics Meeting

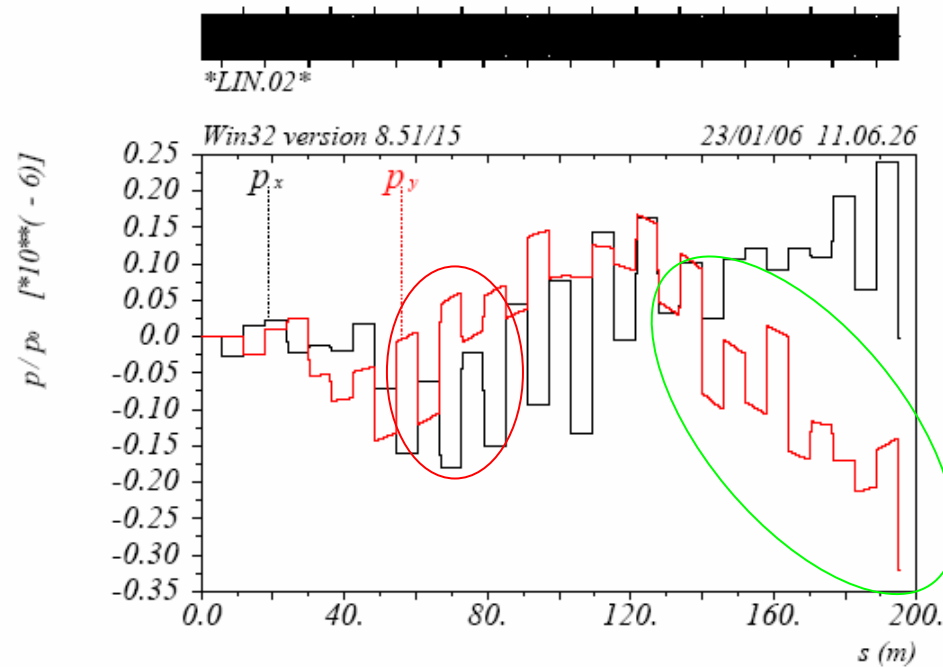
23.01.06

- Beam with  $\epsilon_n = 1$  mm mrad, 17.5 GeV,  $\langle \beta_{\text{und}} \rangle \approx 30$  m

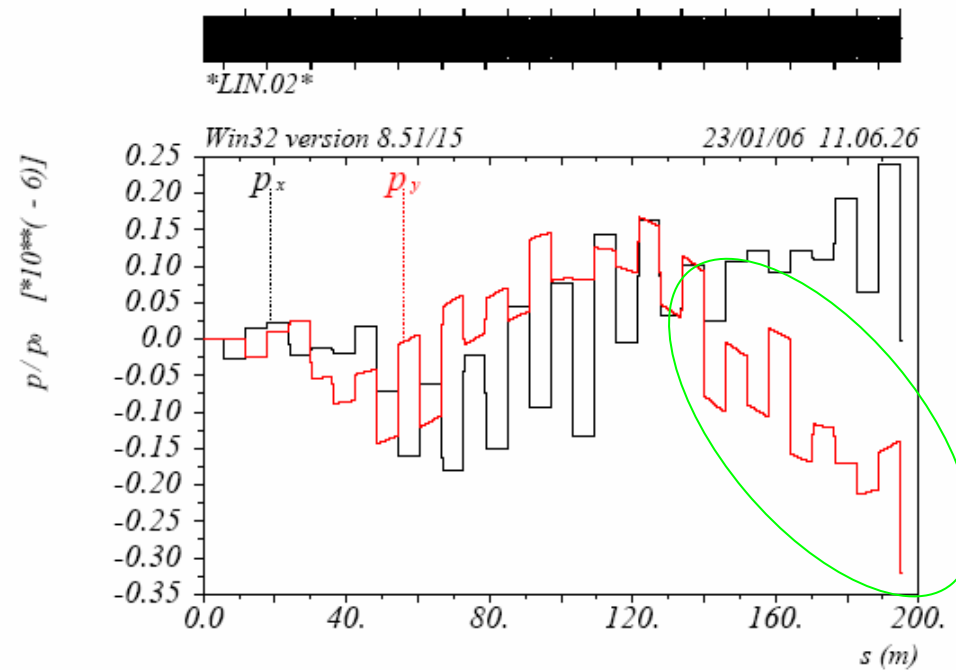


- We claim around  $0.1 \sigma$  is okay:
  - $3 \mu\text{m}$  trajectory amplitude
  - $0.1 \mu\text{rad}$  trajectory angle
- Required only for distances in the order of a gain length?

*Can this be relaxed ?*



- Pointing stability important , again we claim  $0.1 \sigma$
- Required only for the last section of the undulator?
- Absolute value not important, but jitter is !
- Is  $0.1 \sigma$  sufficient ?



	SASE	USER
$X_{\text{rms}}$	3 $\mu\text{m}$	
$X'_{\text{rms}}$	0.1 $\mu\text{rad}$	0.1 $\mu\text{rad}$
Timing		Measured to an accuracy < 30 fs