

Off Momentum Beta-Beat Exp

M. Aiba, R. Calaga, R. Miyamoto, R. Tomas, G. Vanbavinckhove, May 20, 2009

Experiment Goal:

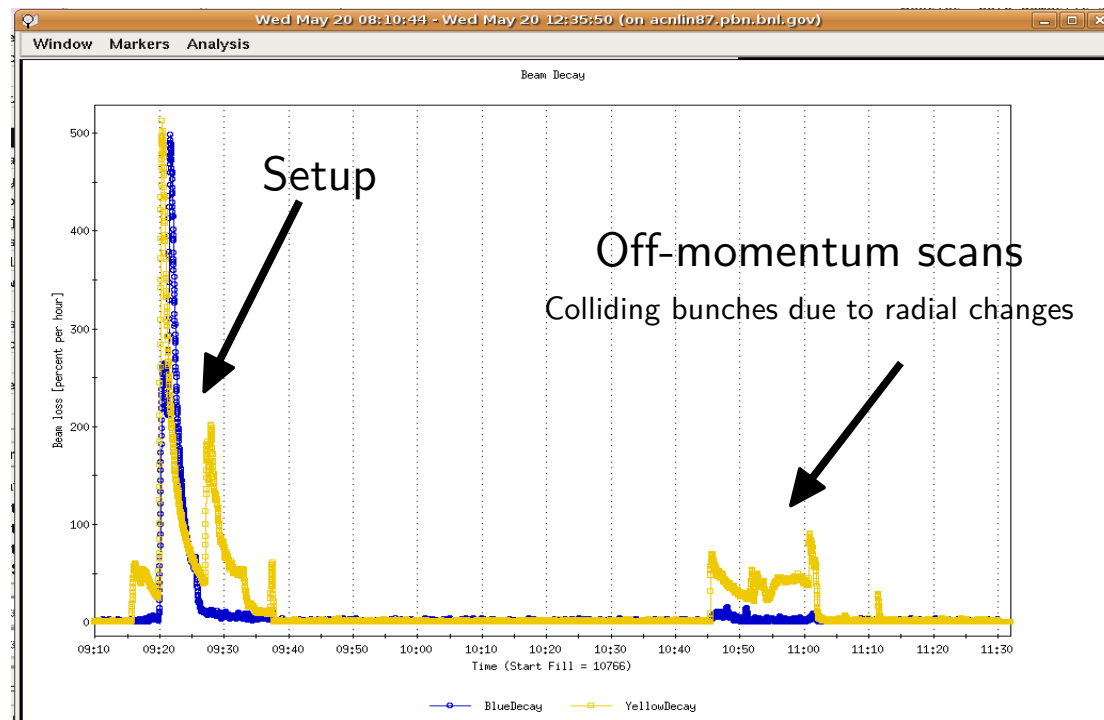
250 GeV measurements of kicked data (on/off momentum)

Measure off-momentum beta-beat @injection (12x12 bunches)

Coupling and correction

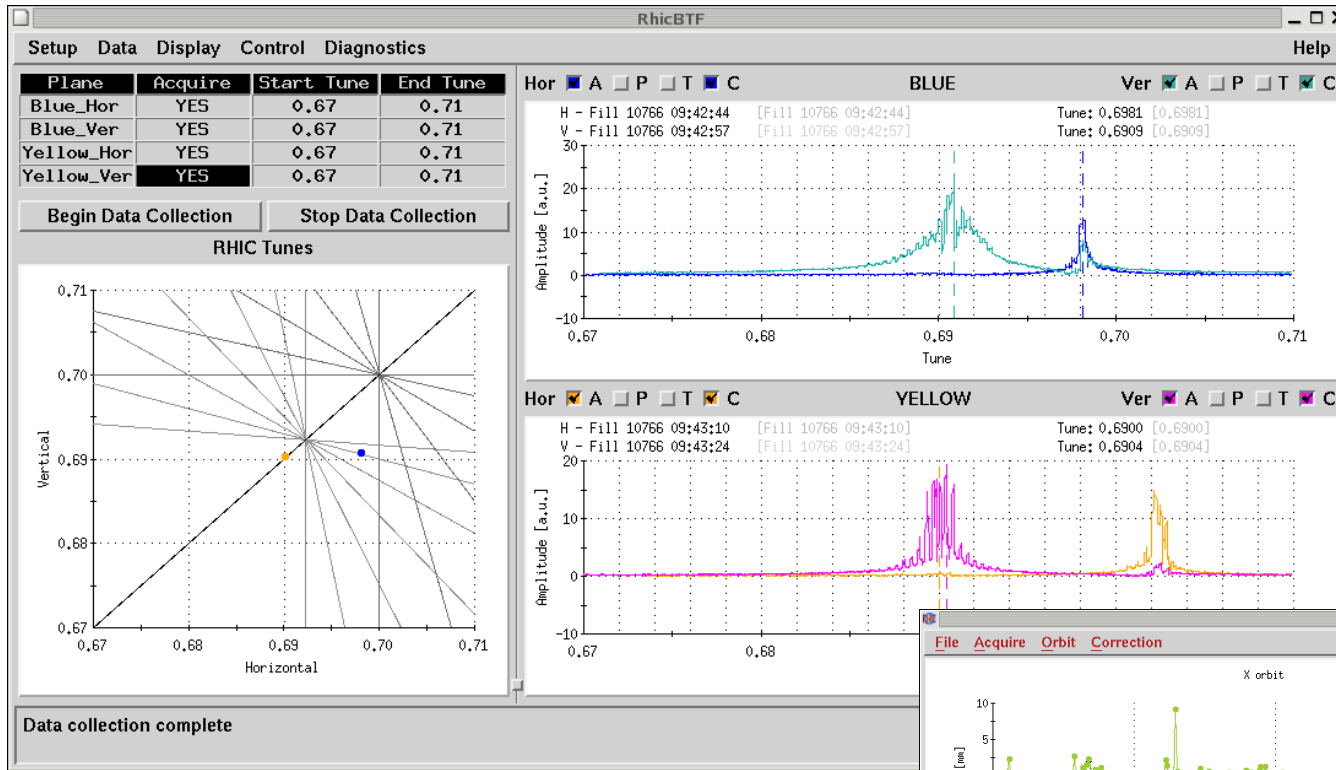
2 hrs: 250 GeV setup and short off-momentum scan

Radial loop setup requires for both beams with “single event”



Ack: R. Michnoff, M. Minty, V. Pitytsn, T. Satogata

Store Conditions



Blue: $Q_x = 0.69$, $Q_y = 0.698$

Yellow: $Q_x = 0.693$, $Q_y = 0.703$

$\epsilon_x = 12/10 \mu\text{m}$, $\epsilon_y = 21/? \mu\text{m}$

Separation bumps removed

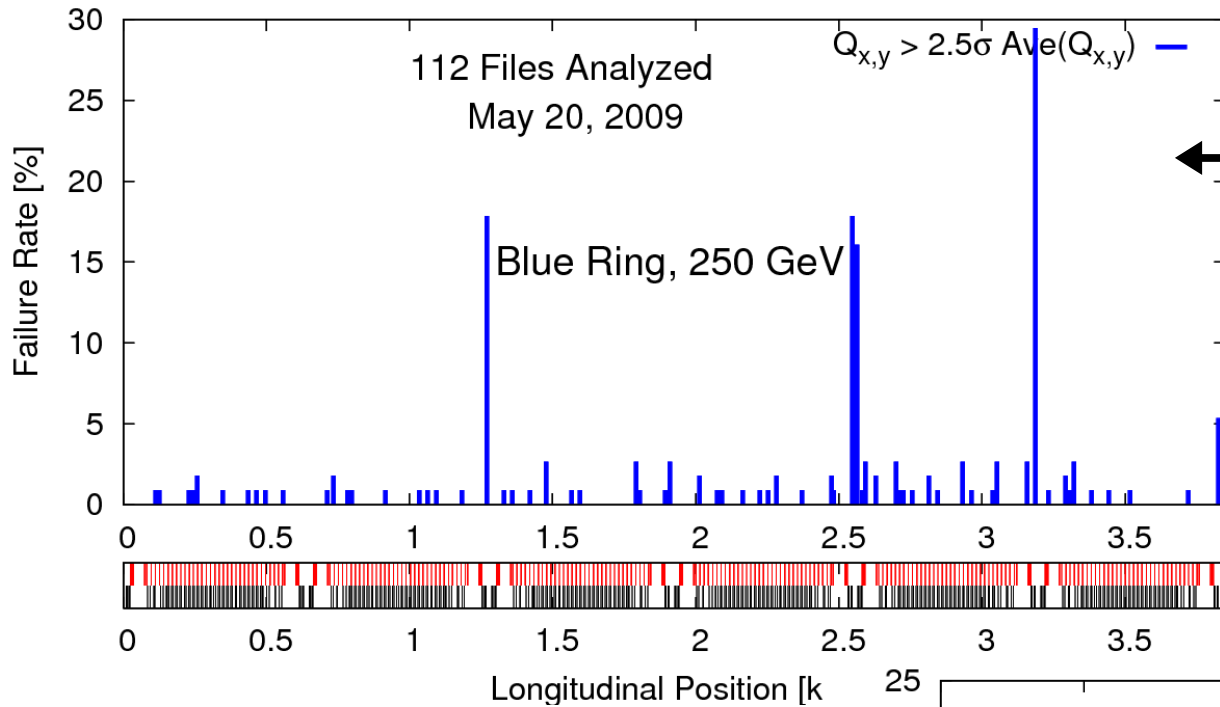


Off-Momentum Scans

Positive dp/p scan (0 – 1.25 mm \rightarrow $dp/p=0.93 \times 10^{-3}$)

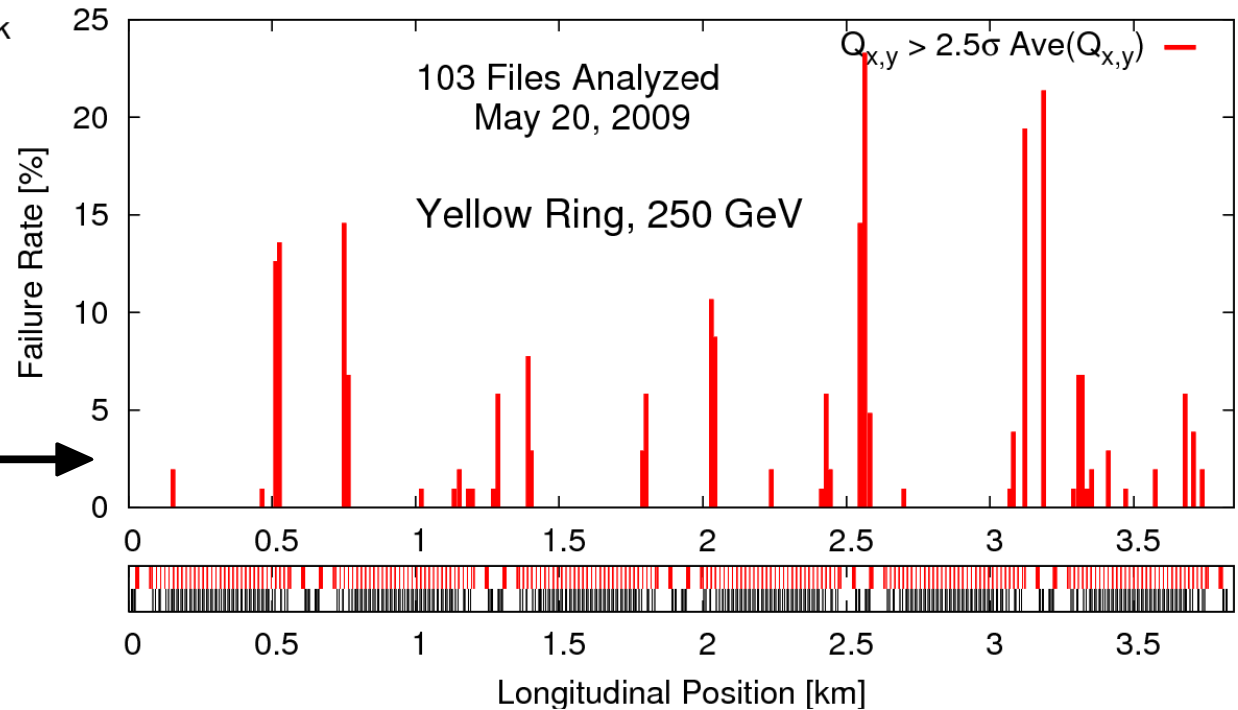
Because the bunches were cogging due to non-simultaneous radial change
Needed to create a special event trigger to co-move the frequencies of

BPM Failure, Tune Filtering

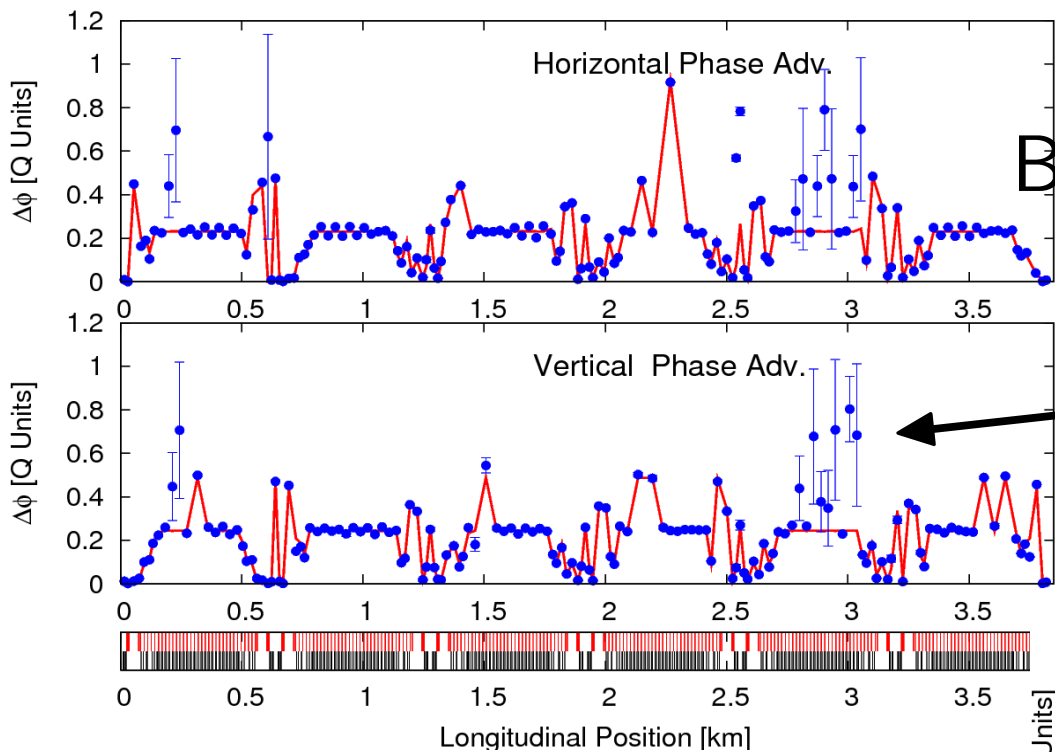


Pattern different from
May 13, 2009 (Inj)

IRs look worse like in
the past

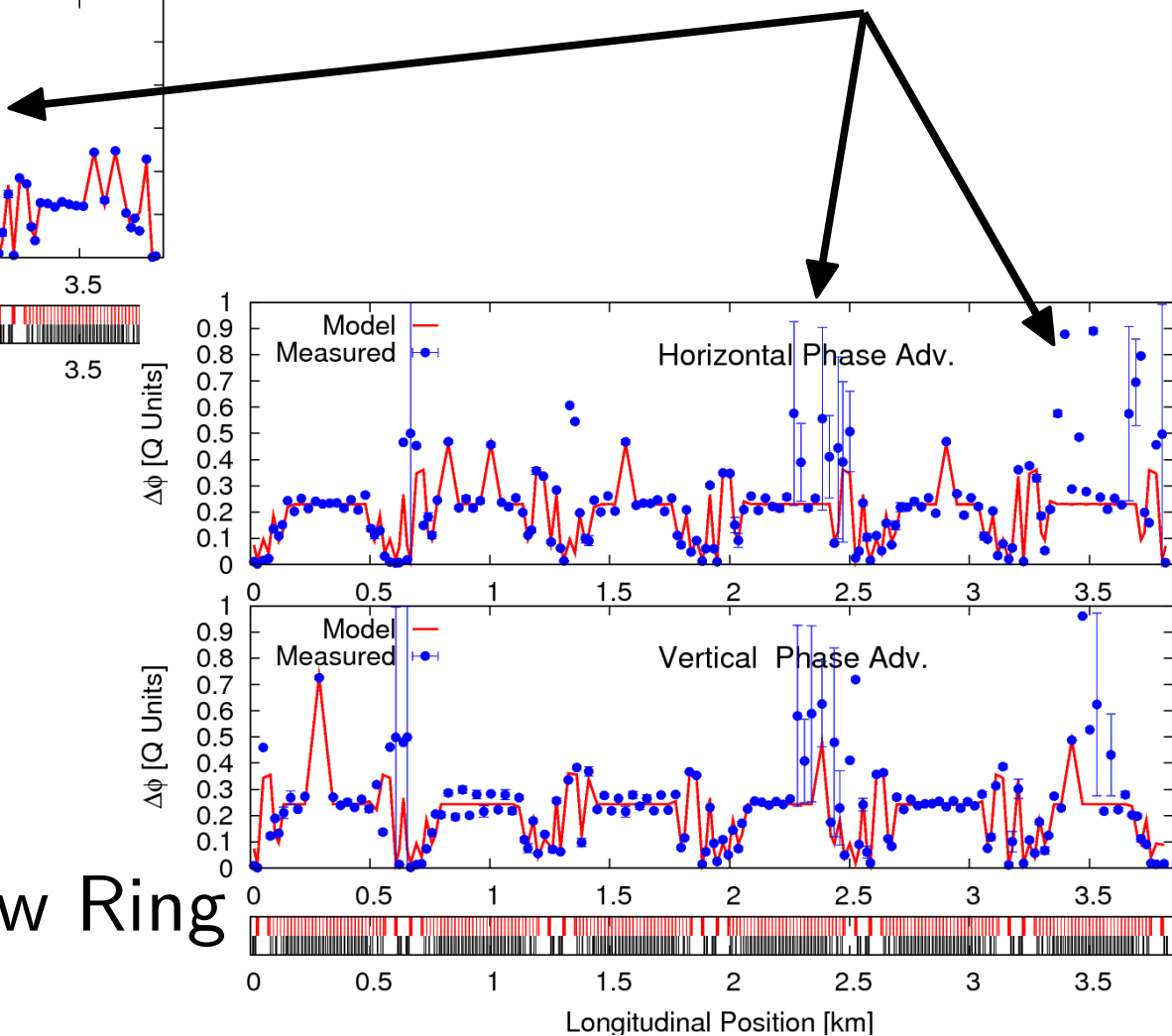


Phase Advance, 250 GeV



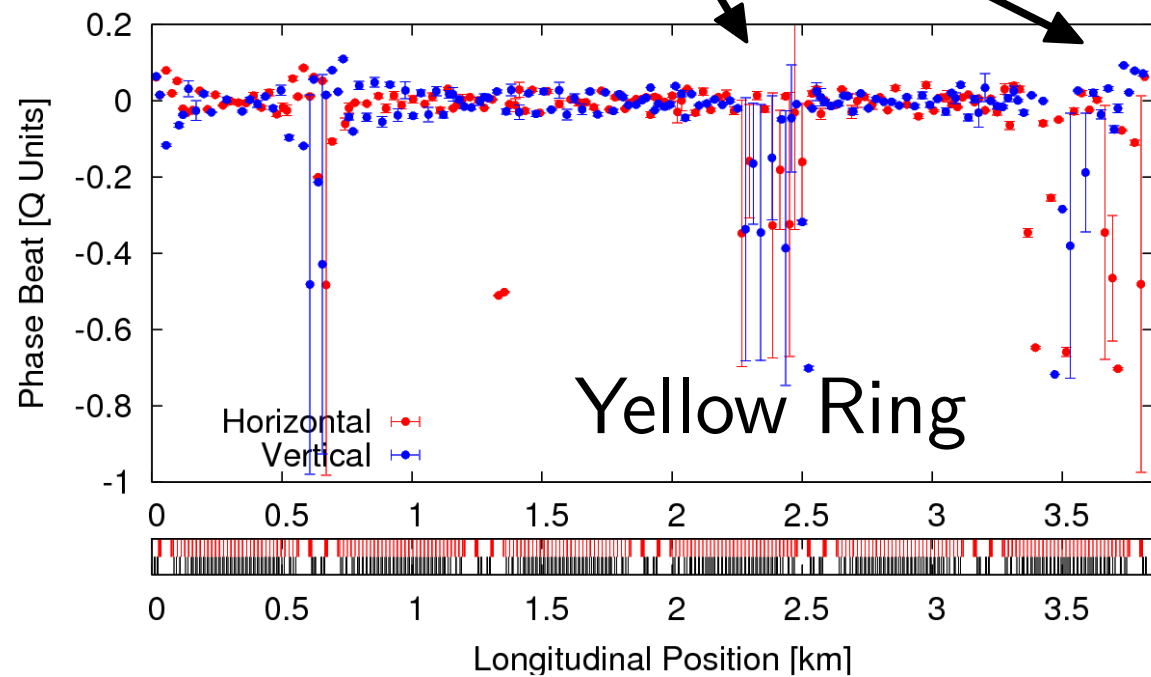
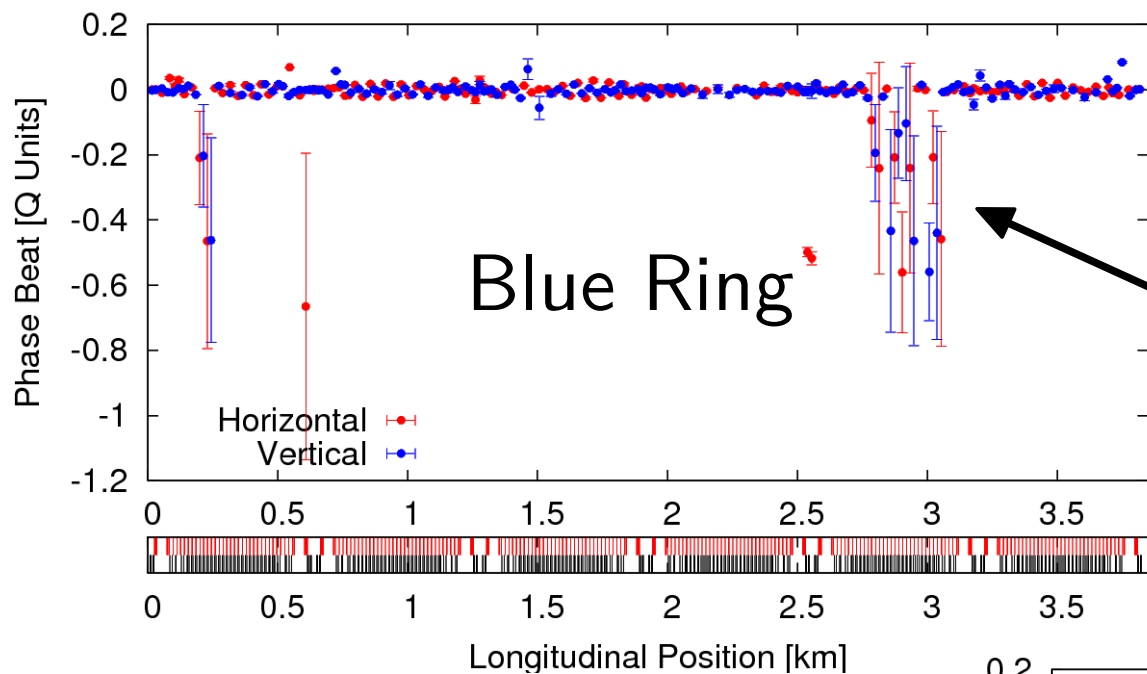
Blue Ring

BPM Synchronization ?



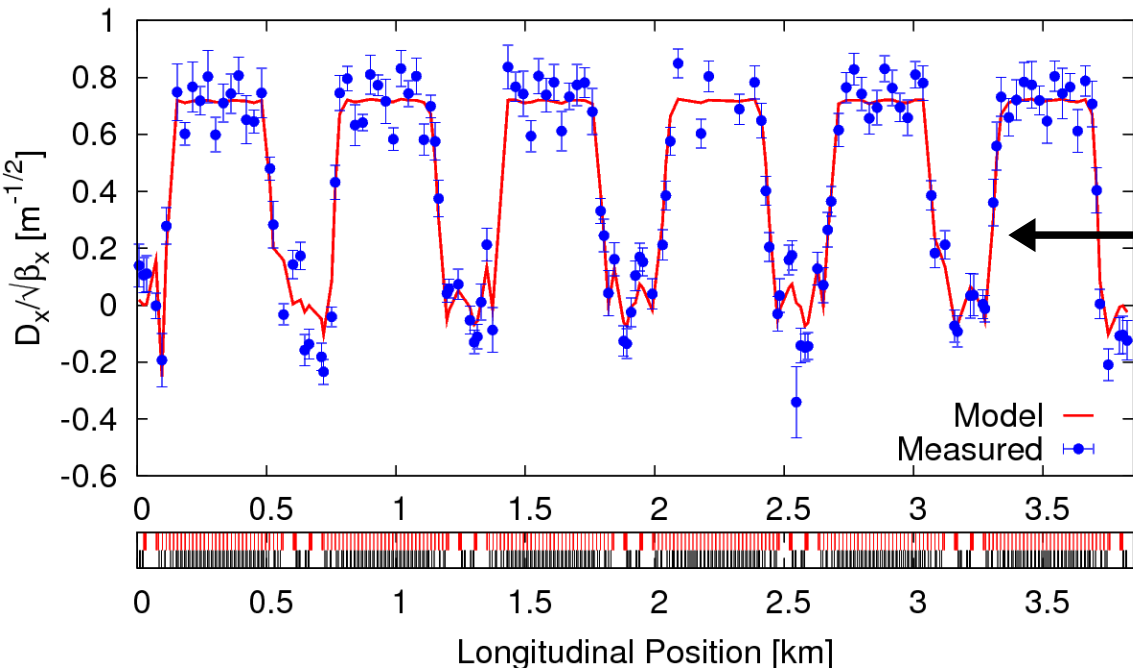
Yellow Ring

Phase Beat, 250 GeV



BPM Synchronization ?

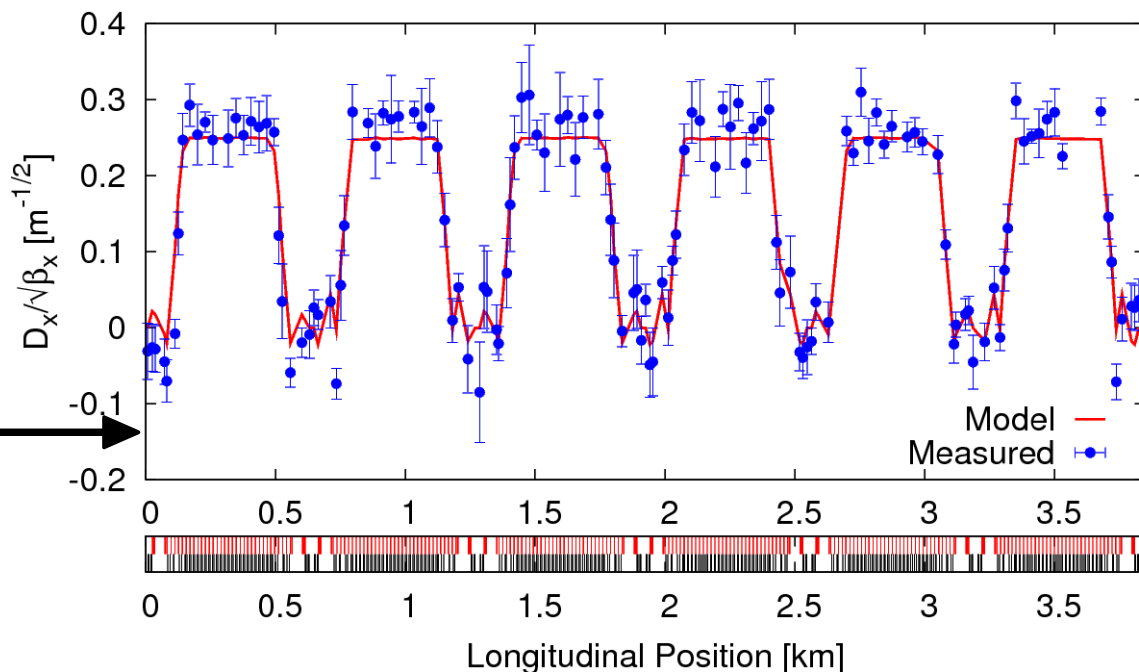
Normalized Dispersion, 250 GeV



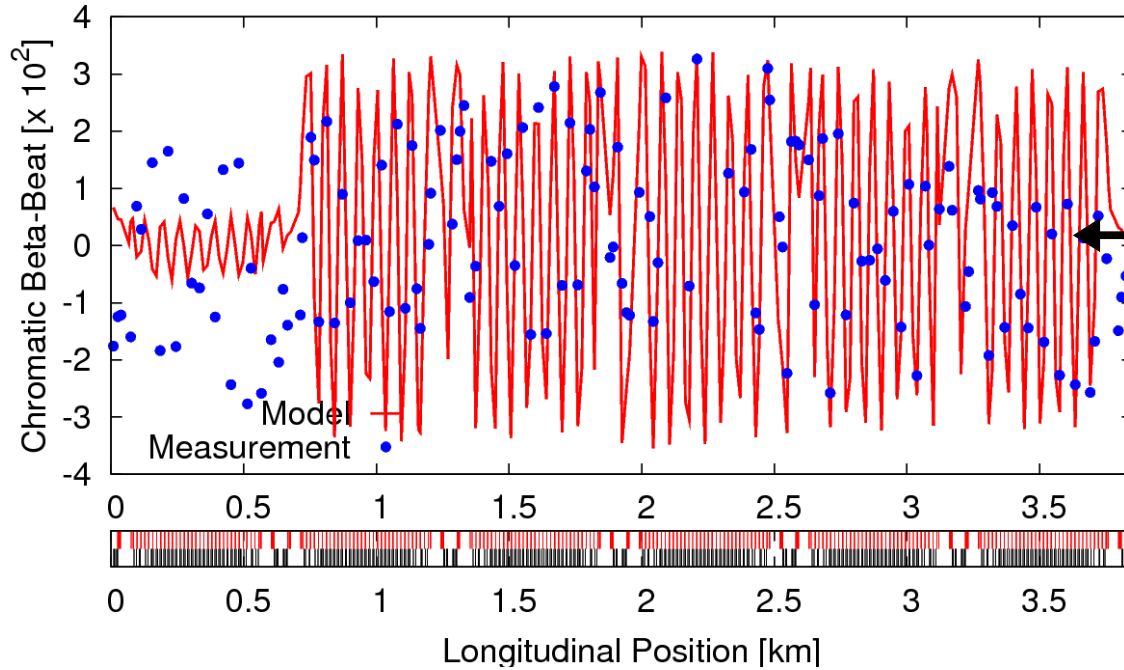
Blue Ring

~20% Dispersion beating

Yellow Ring

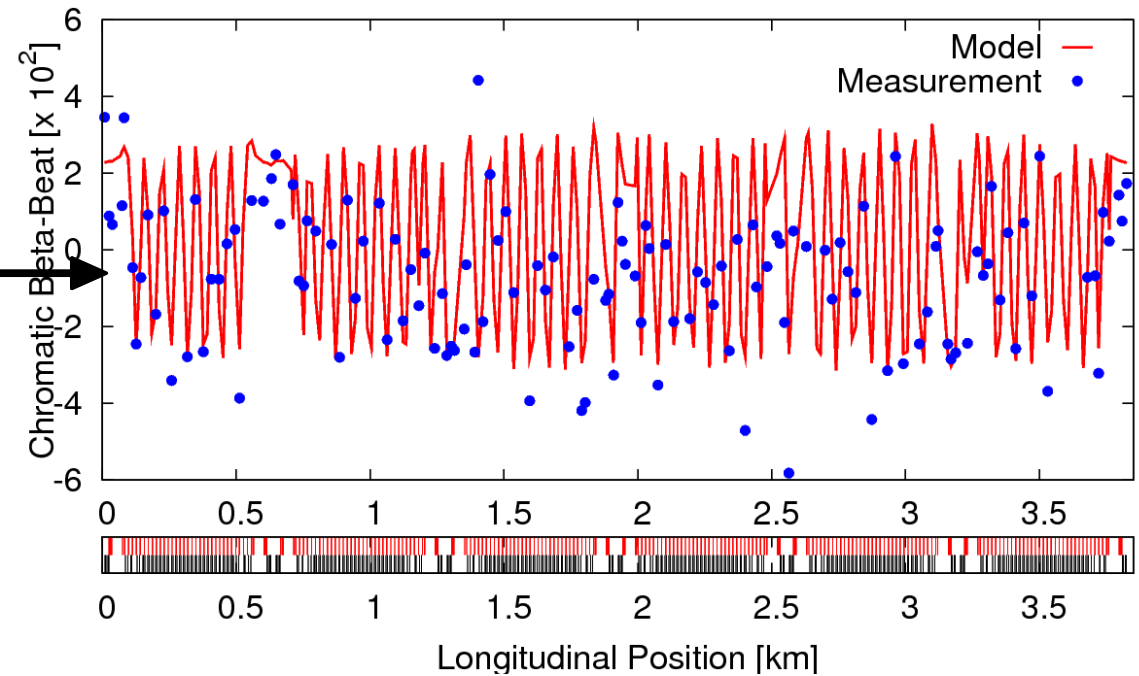


Chromatic Beta-Beat, 250 GeV



Blue Ring

Yellow Ring



Measurement can be automated