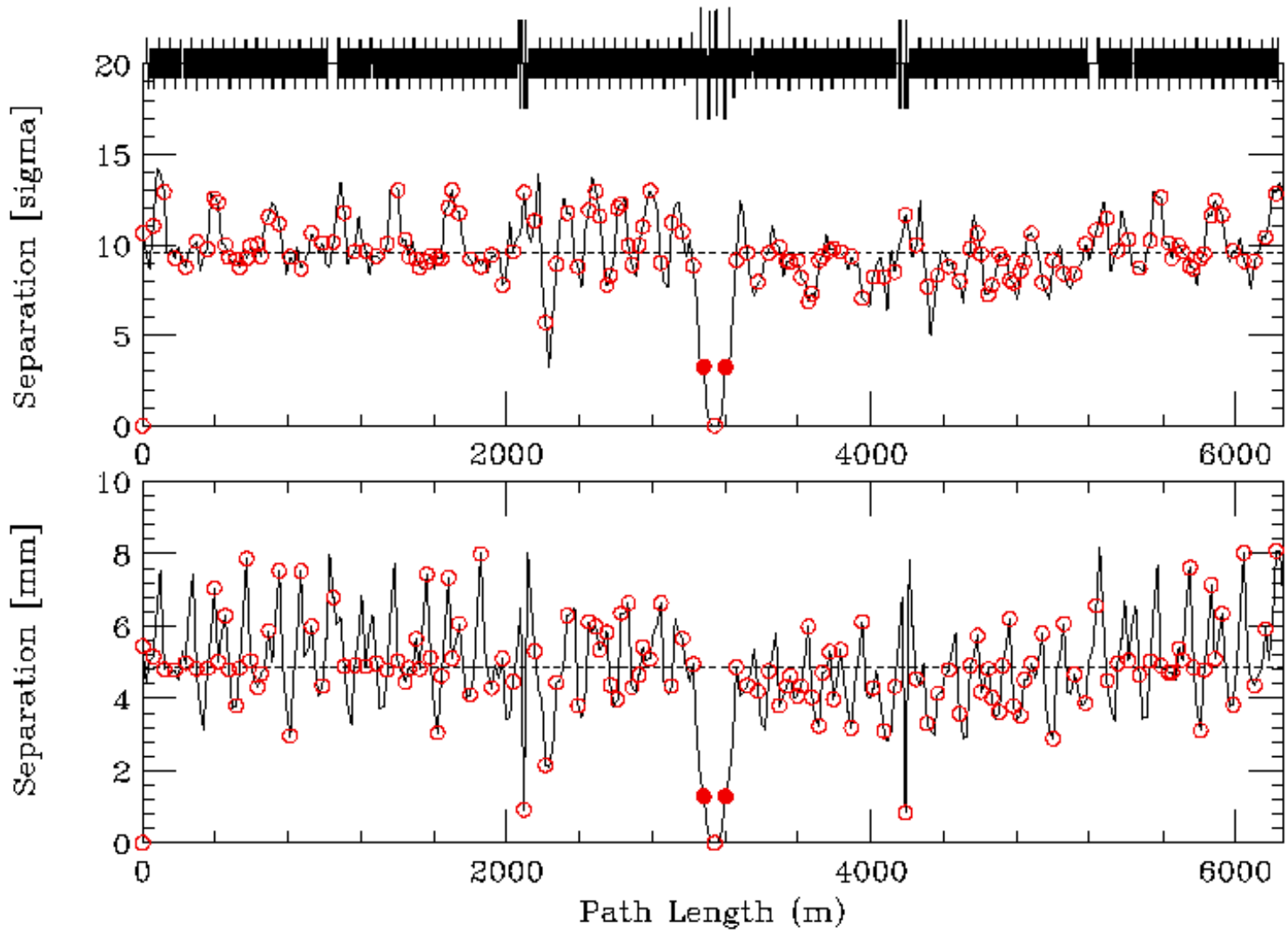
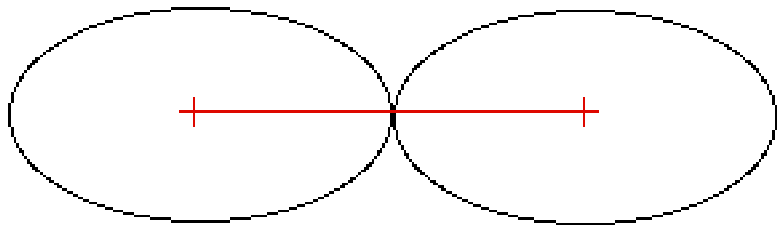
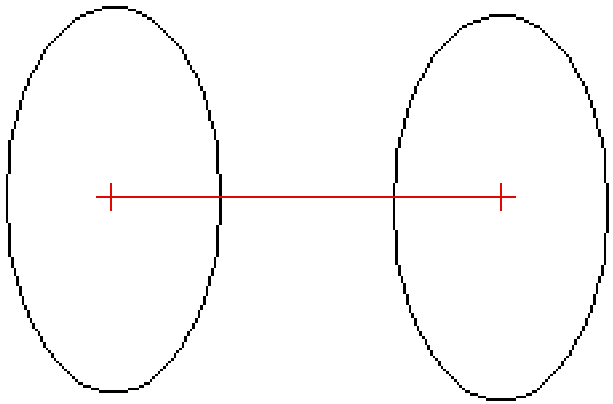
BASELINE Pbar-P Orbit Separation



Pbar-P Bunch Separation & Aspect Ratio



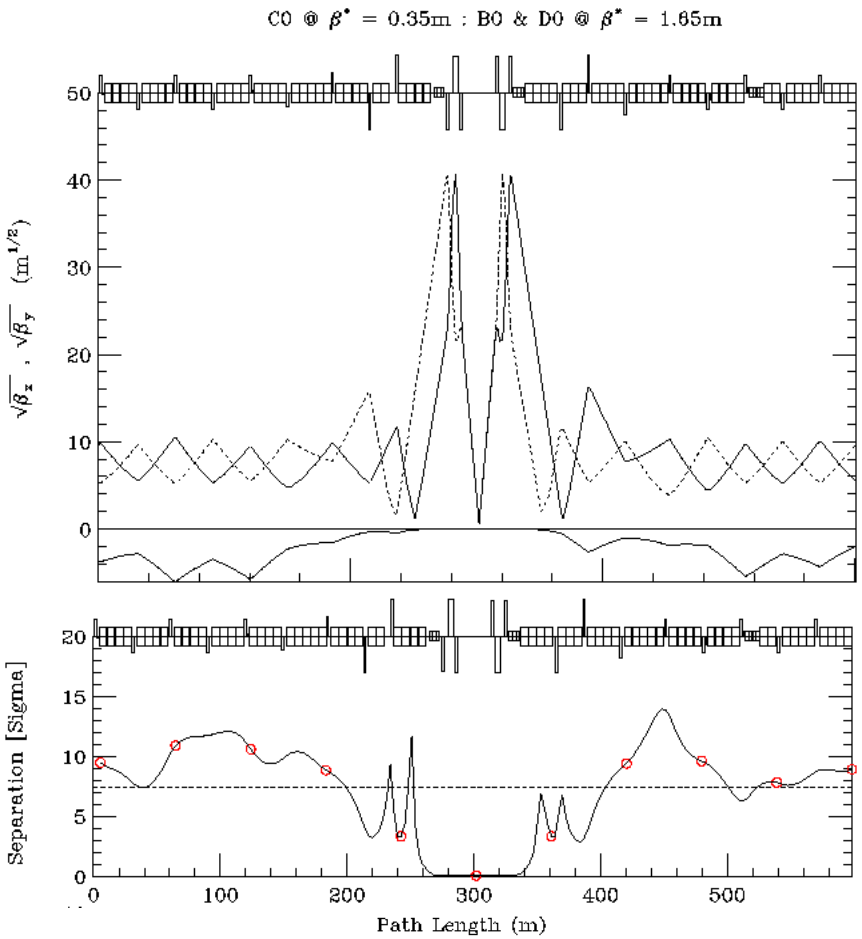
Sucks



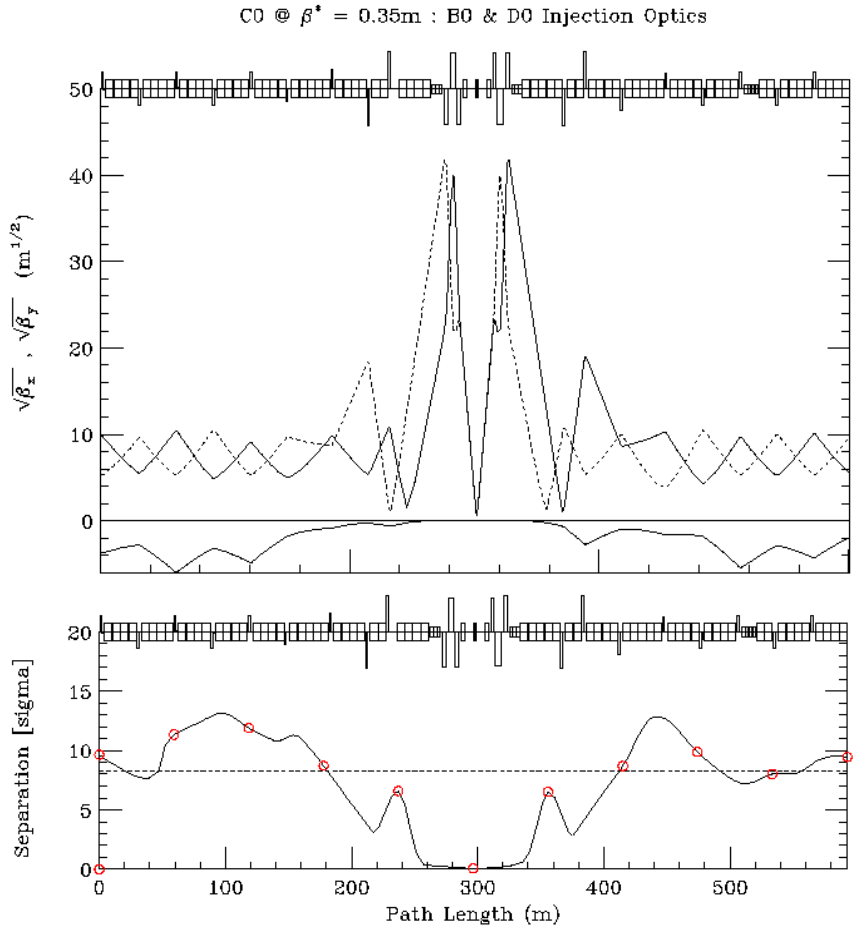
Better

Improved Separation @ 1st PC by Shifting Q4

BASELINE

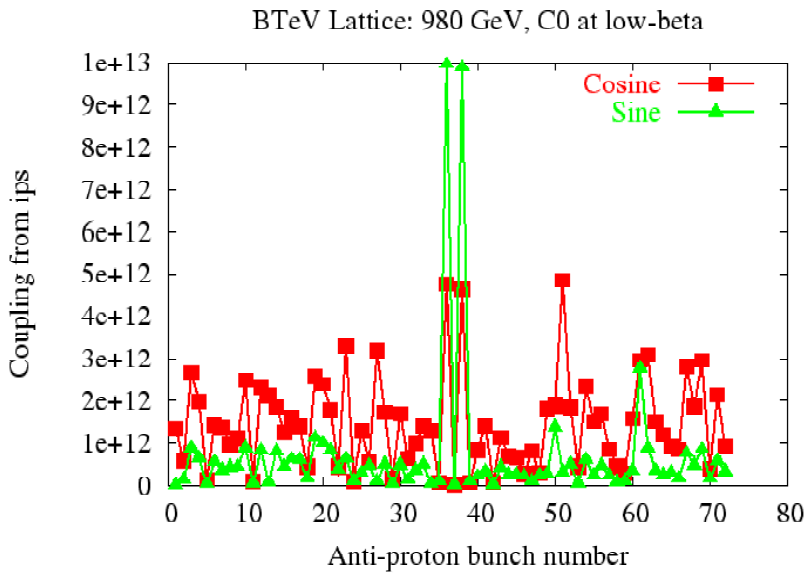


OPUS 2

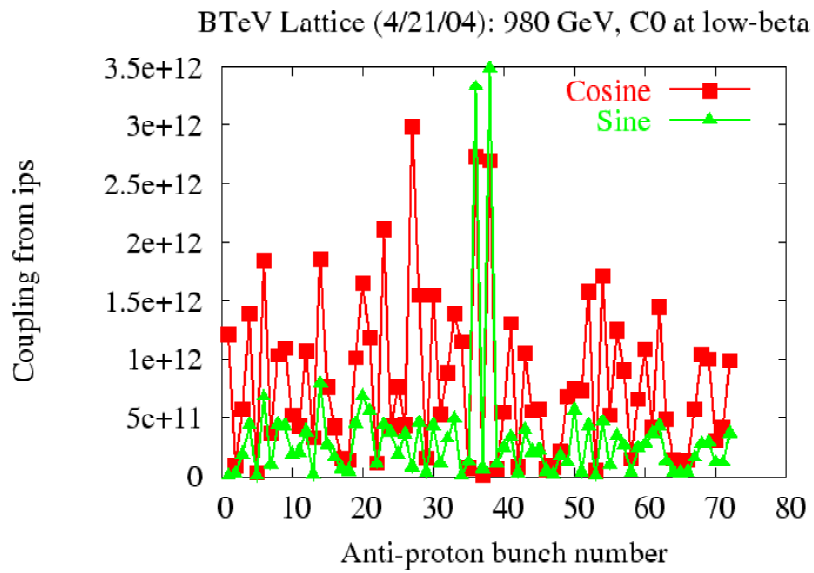


Coupling Coefficient

BASELINE



OPUS 2



T. Sen

Gross Lattice Modifications

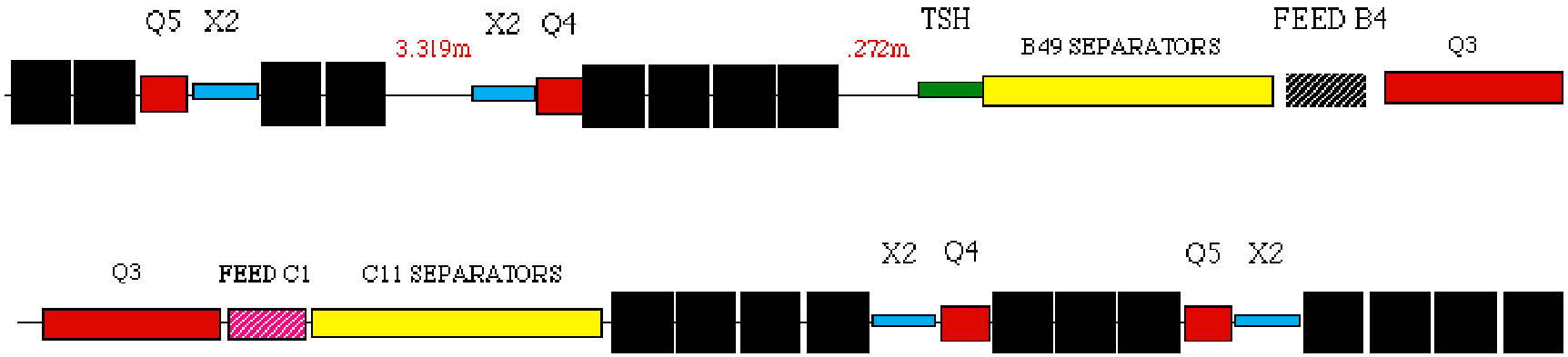
0th Order (*circa* 4/21/04):

- Move Q4's 1 dipole slot farther from the IP.
- Increase Q5 magnetic length by 5" (**no** change in slot length).
- Shuffle B4 dipoles to reclose orbit.

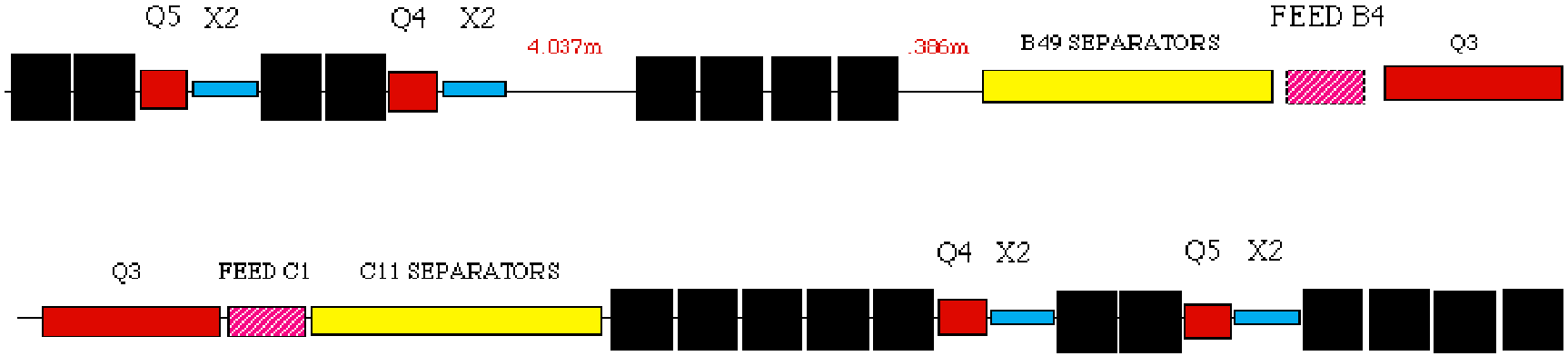
Opus #2 (*circa* 5/02/04):

- Increase Q4 & Q5 slot lengths by 4" & 5".
- Decrease Q1, Q2, & Q3 magnetic + slot lengths

BASELINE



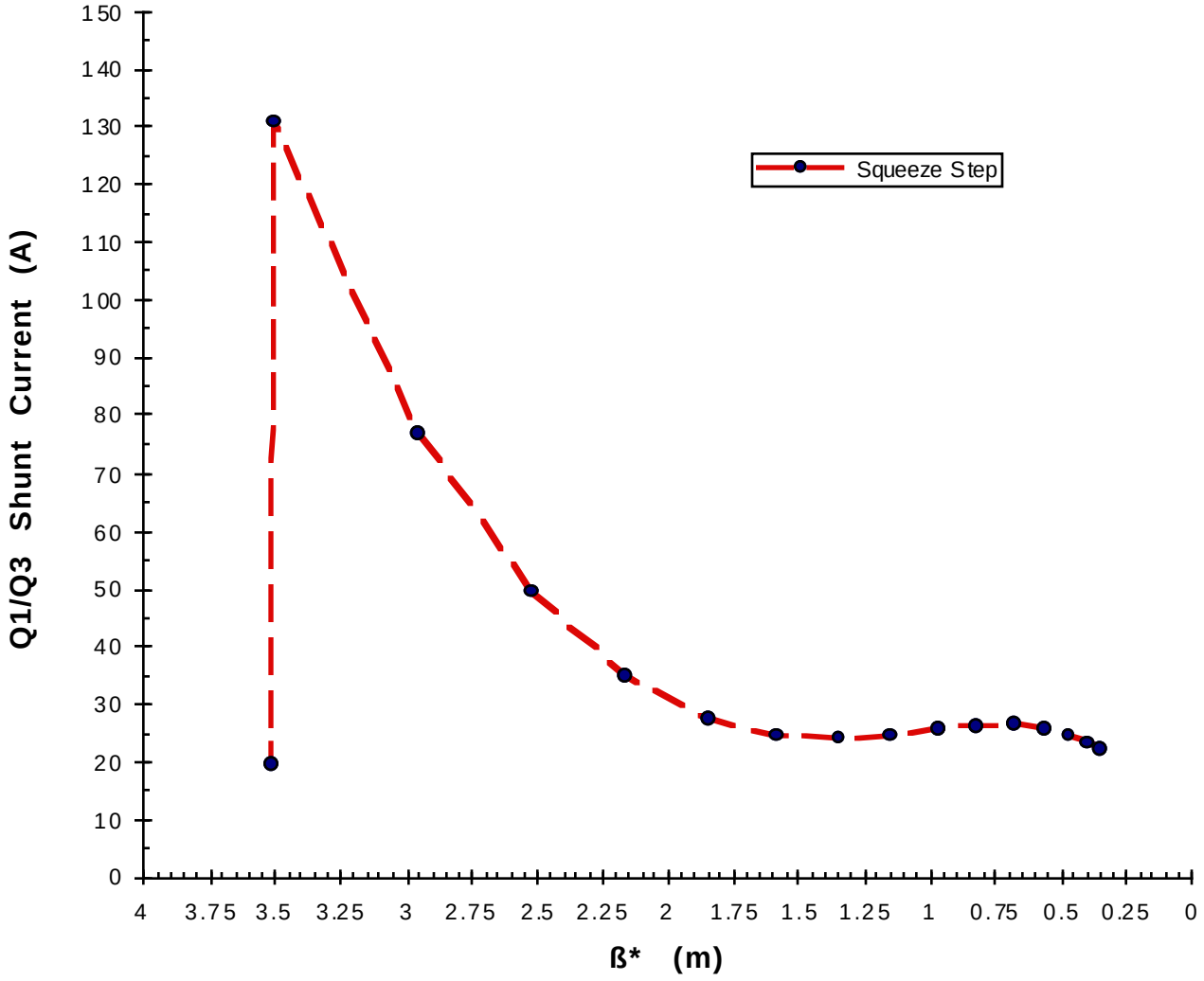
OPUS 2



Lattice Changes for C0 IR Opus #2

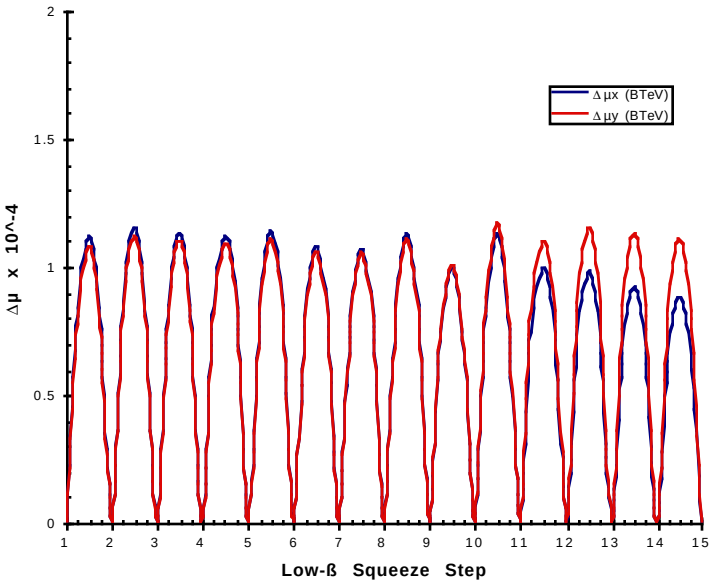
		BASELINE		OPUS 2	
C13	Q5 L(mag) Q5 + X2 Slot	54" 152.274"		59" 157.274"	
C12	Q4 L(mag) Q4 + X2 Slot	79" 173.274"		79" 177.274"	
C11	Feedcan	29"	5 kA Leads	29"	5 kA Leads
Triplet C1	Q1 & Q3 L(mag) Q2 L(mag)	96.5" 173.5"		93.875" 169.250"	
Triplet B4	Q1 & Q3 L(mag) Q2 L(mag)	96.5" 173.5"		93.875" 169.250"	
B49	Feedcan Spool TSH Spool	29" 10.716" 49.91"	5 kA Leads	29" 15.183"	5 kA Leads
B48	Q4 L(mag) Q4 + X2 Slot Collimator Slot	79" 173.274" 101.161"		79" 177.274" 146.699"	
B47	Q5 L(mag) Q5 + X2 Slot	54" 152.274"		54" 152.274"	

Q1/Q3 Shunt Current vs Low-§ Squeeze Step

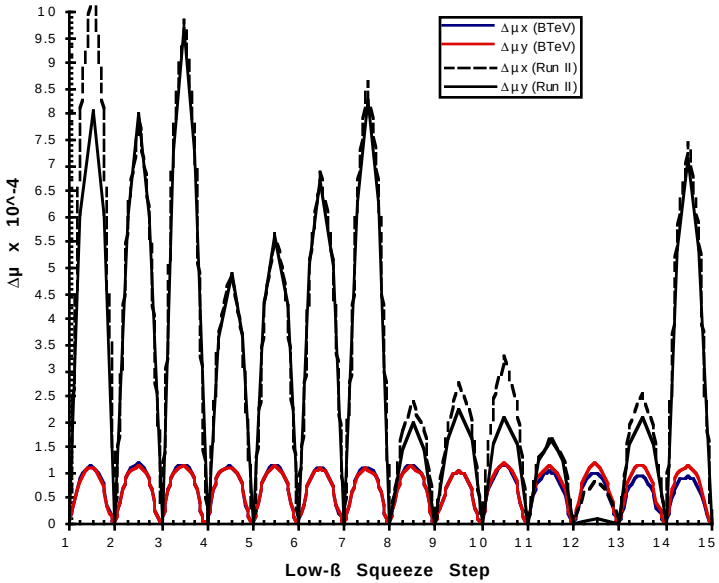


Tune Variation vs Low-§ Squeeze Step

C0 Squeeze



BTeV *cf* Run II



Summary

- Separation at 1st parasitic crossings nearly doubles — $3.5\sigma \rightarrow 6.5\sigma$ $\Rightarrow$ p-pbar coupling **decreases** by a factor of 2–3.
- Left/Right "handedness" of X2 spools vanishes $\Rightarrow$ 1 less spool flavor.
- Q4 & Q5 slots **increase** by 4" & 5" $\Rightarrow$ "easier" connections for Toms.
- Differential in shunted current between injection & collision optics **decreases** — range is now ~20A to ~130A $\Rightarrow$ George K is happier.
- TSH spool vanishes $\Rightarrow$ B4 feedcan needs 5 kA leads like that at C1.
- Q5 magnetic length **increases** by ~4-5" to keep below 170 T/m.
- Q1,Q2, & Q3 magnetic lengths **decrease** by ~3-4" to compensate for increased Q4 & Q5 slot lengths & to maintain 40' clearance from IP.

Ω