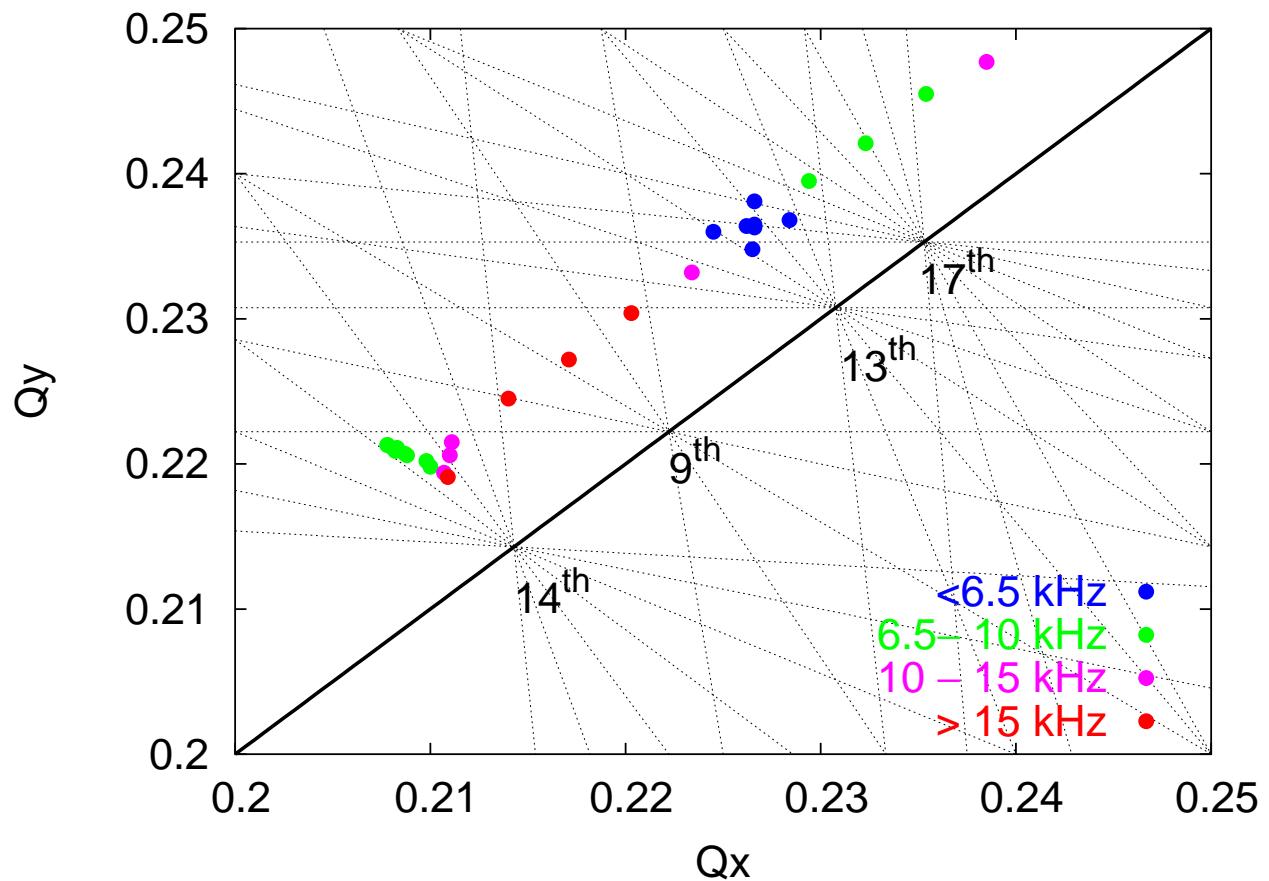


Planned Beam-Beam Experiments in RHIC

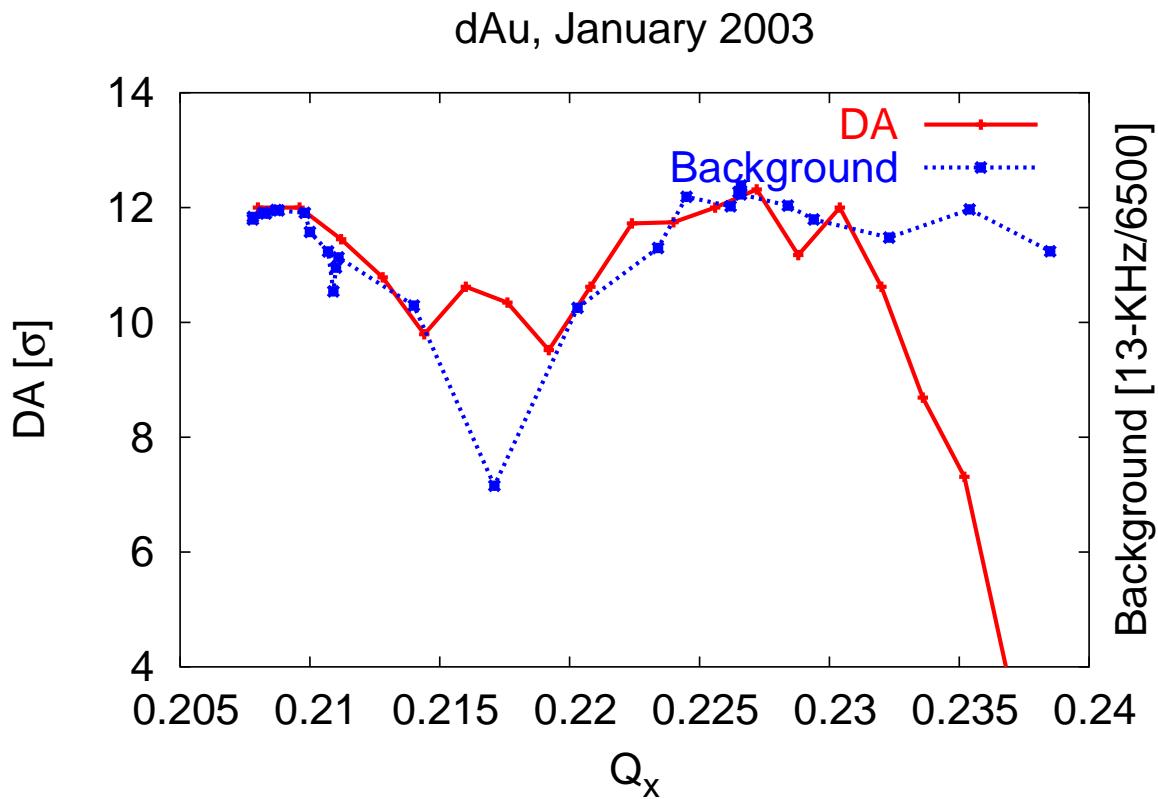
- 1 Working point scan with beam-beam
 - 2 Coherent modes generation
 - 3 Emittance growth with offsets
 - 4 Beam-beam tune shift with long bunches and large crossing angles
 - 5 Measurement of beam-beam resonance driving terms
 - 6 Variation of phase advance between two collisions with constant tunes
- * Vernier scans (Angelika)

1-Background measurements

dAu, January 2003



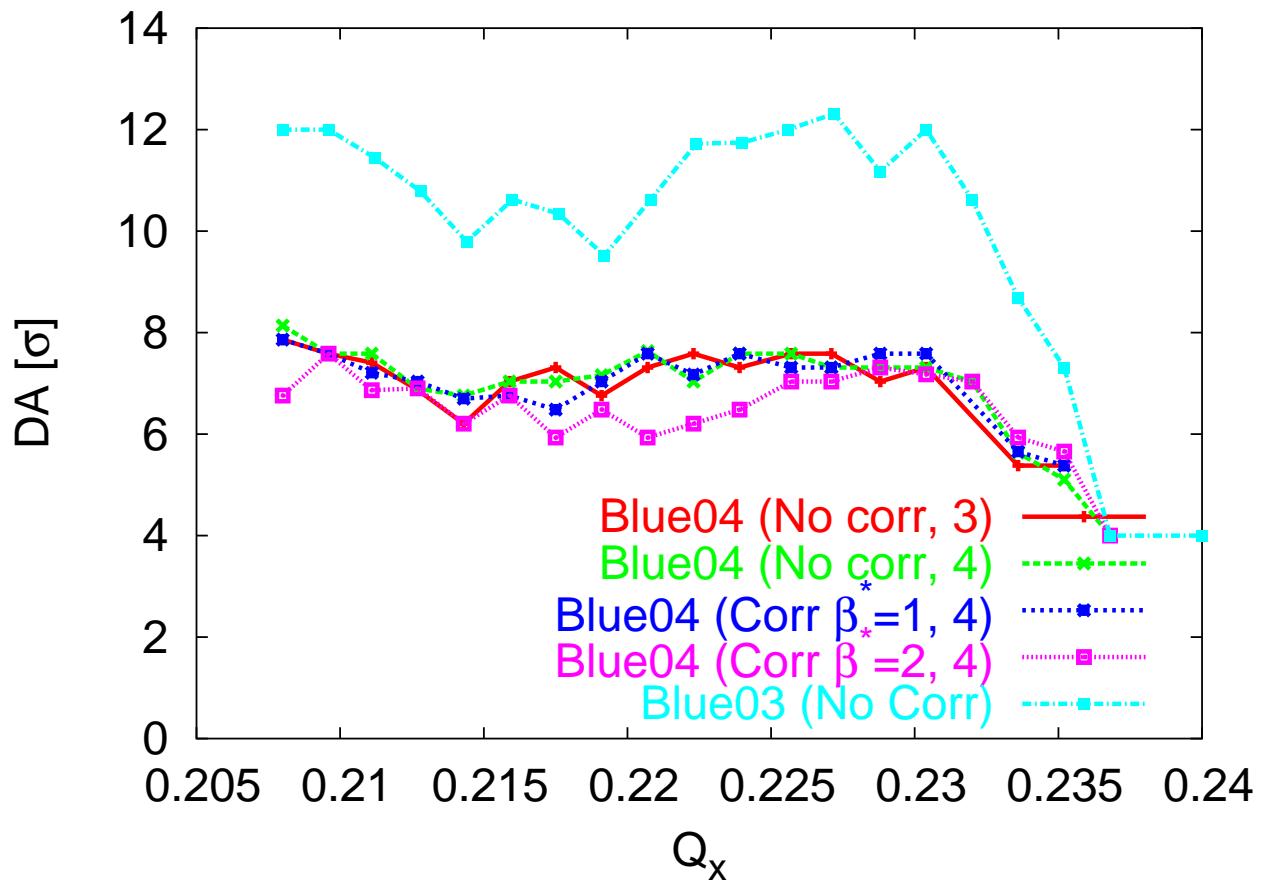
1-Background measurements vs. DA



The model contains beam-beam, triplet errors, 5% σ low frequency orbit modulation, and power supply ripples (no correctors).

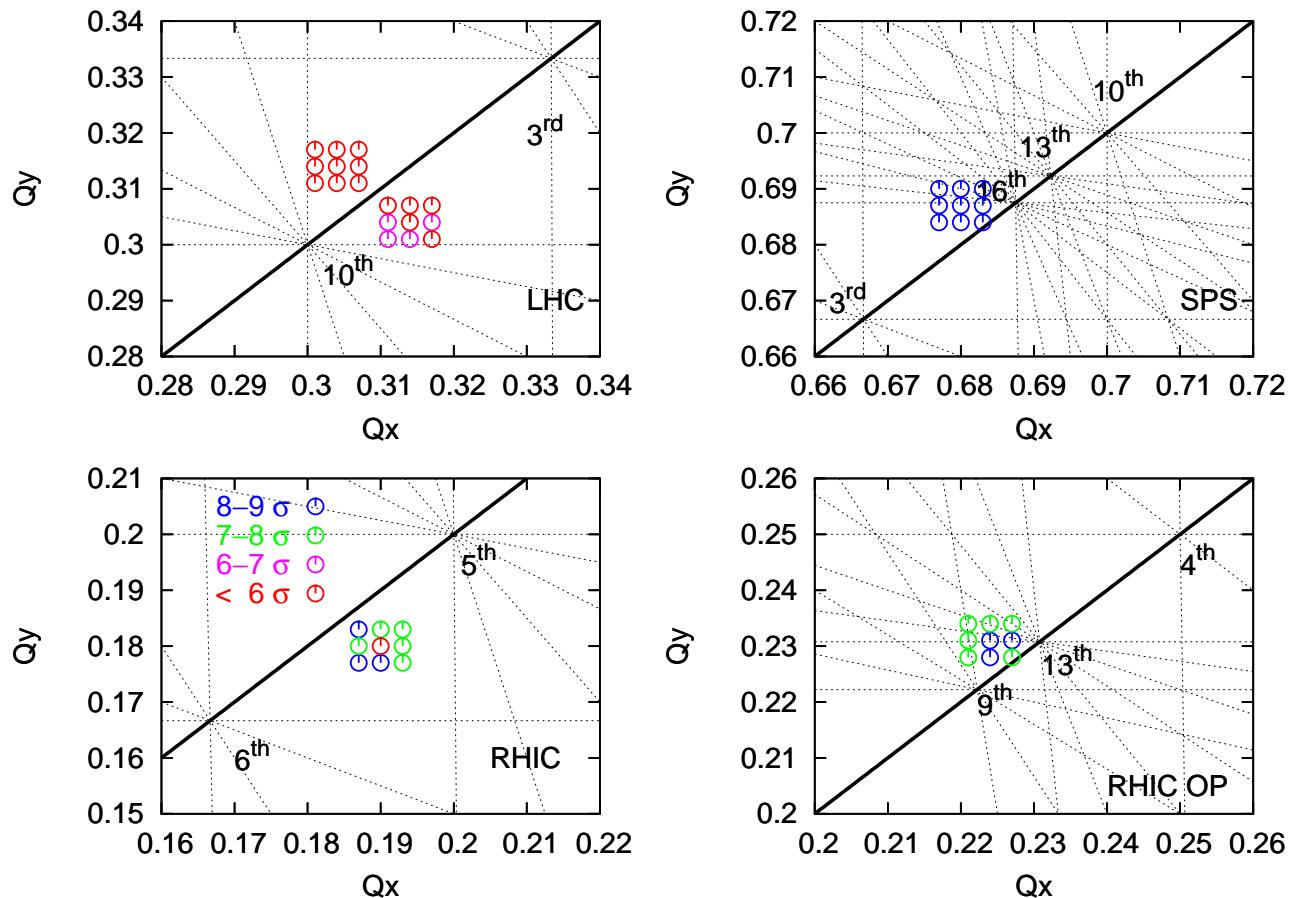
1-Next year lattice - DA

β^* 's = 1 1 4 5 3 5 and 1 1 3 5 3 5



⇒ IR non-linear correction is needed

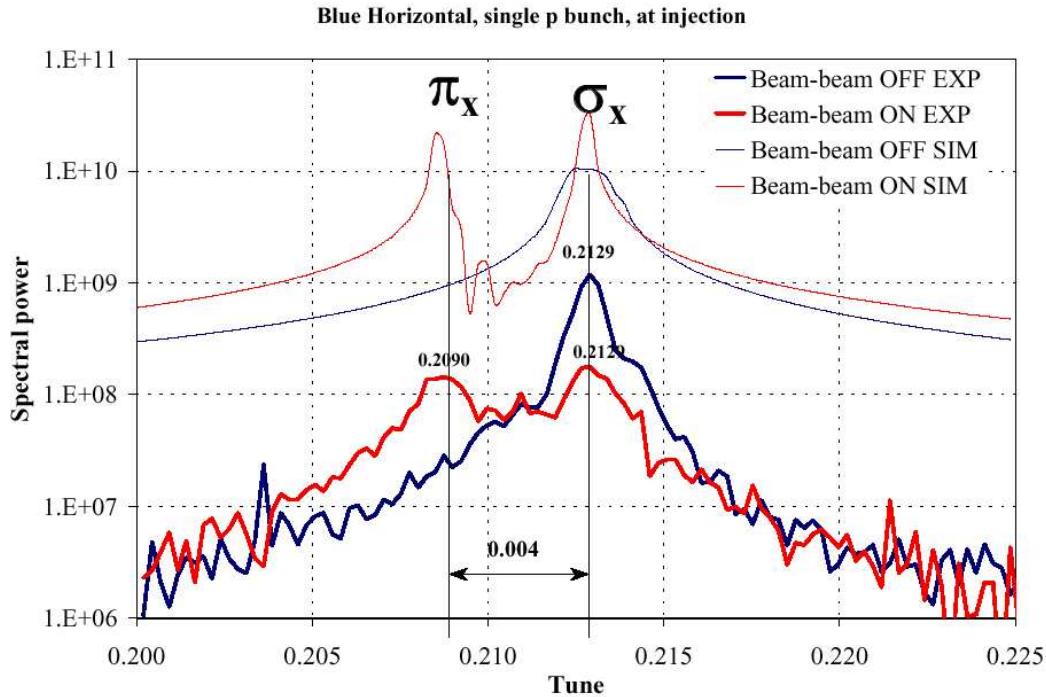
1-Possible working points - 113535



⇒ SPS working point seems a good candidate

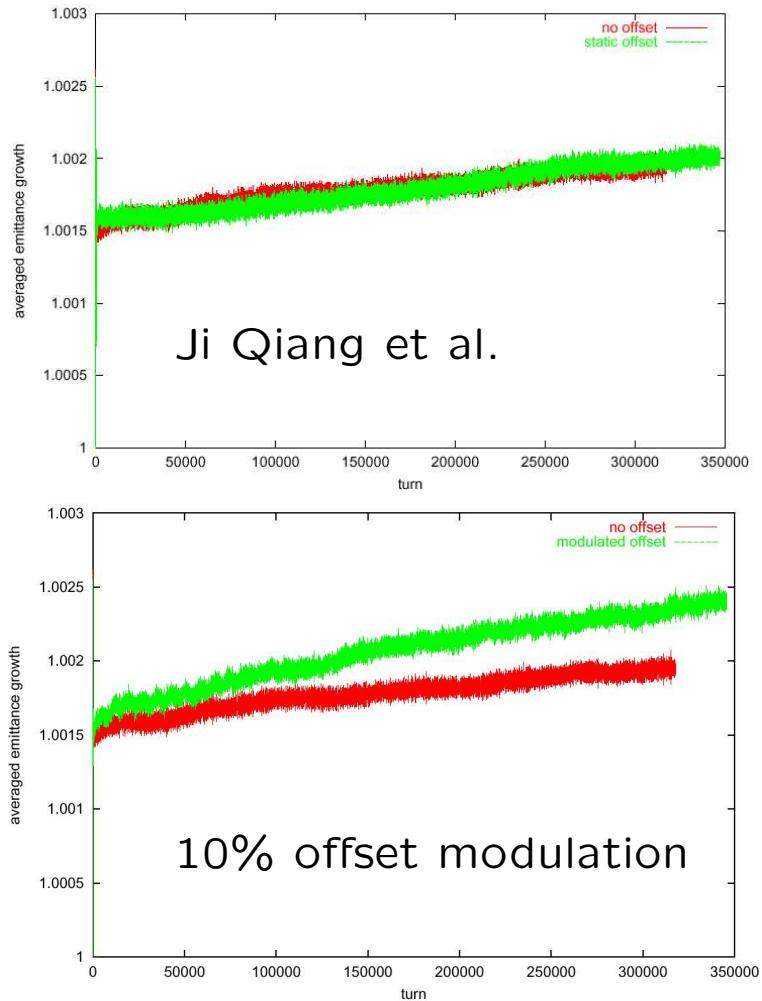
2-Coherent modes

W. Fischer et al, 2002 and 2003:



- ⇒ Coherent modes have been observed also in normal operation
- ⇒ Coherent modes can be a limiting factor when upgrading luminosity

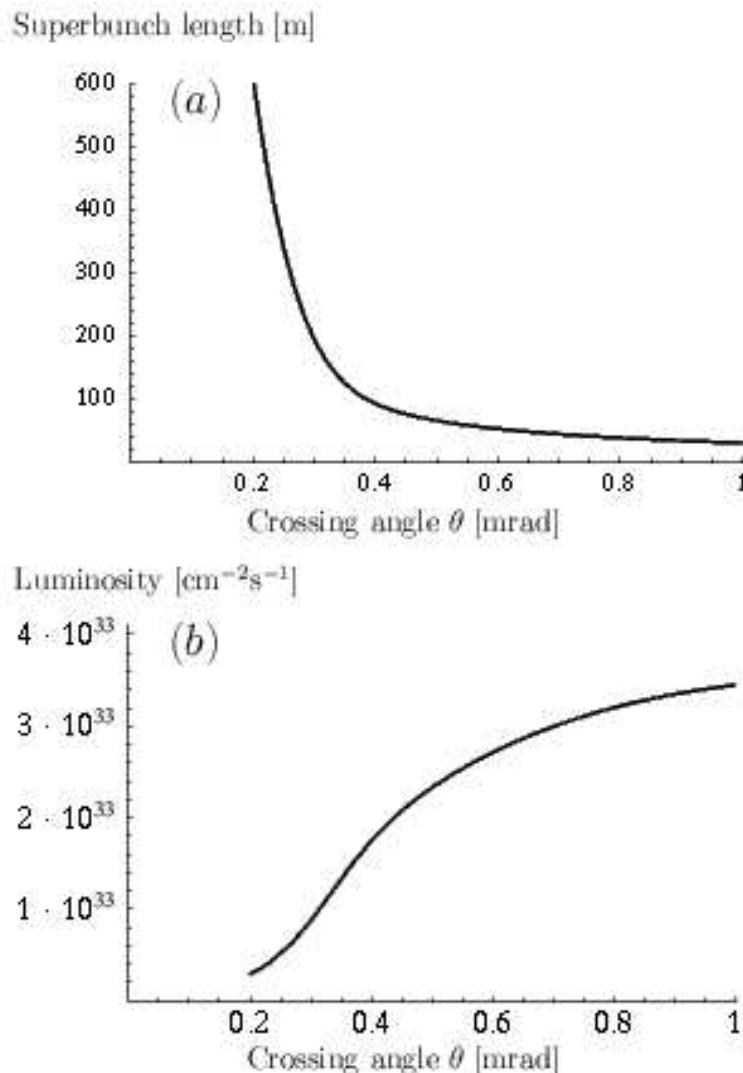
3-Emissance growth with offsets



⇒ Check this simulations and evaluate limits

4-Superbunches and crossing angle

W. Fischer and M. Blaskiewicz 2003:



⇒ Studies of beam-beam tune shift with bunch length and crossing angle required.