

Effects of intra-beam scattering in SuperKEKB

- Preliminary results

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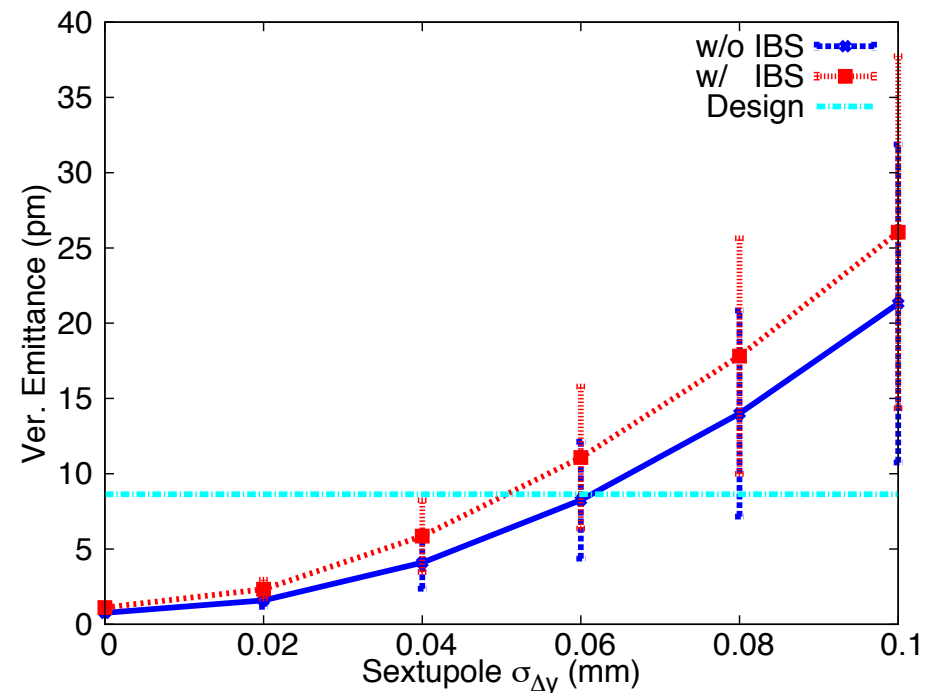
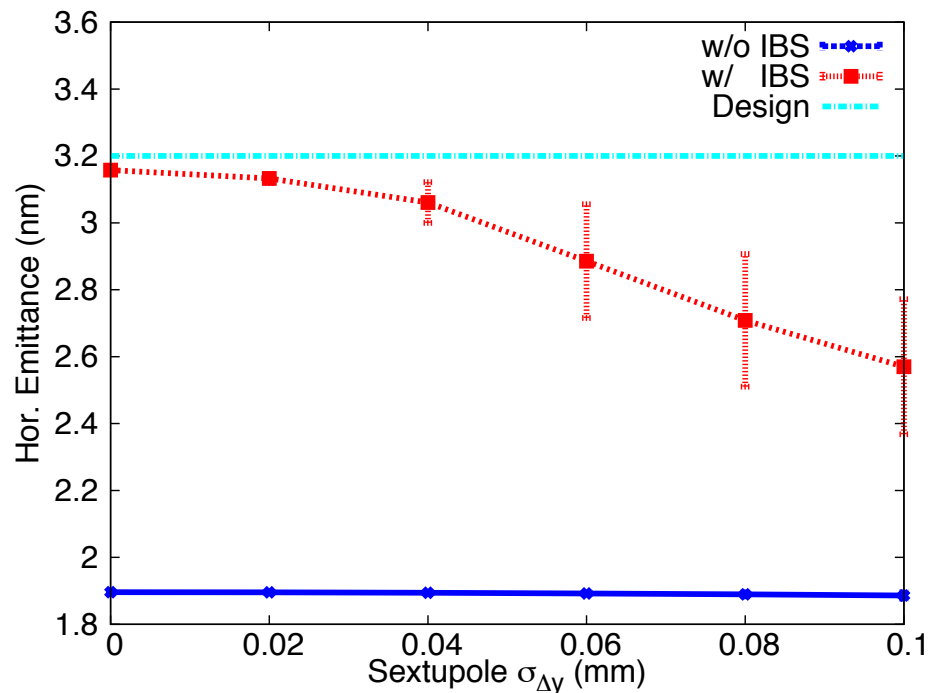
SuperKEKB optics meeting

Mar. 25, 2013

1. IBS: LER: sler_1684

➤ Emittance growth due to IBS (w/ errors in sext.)

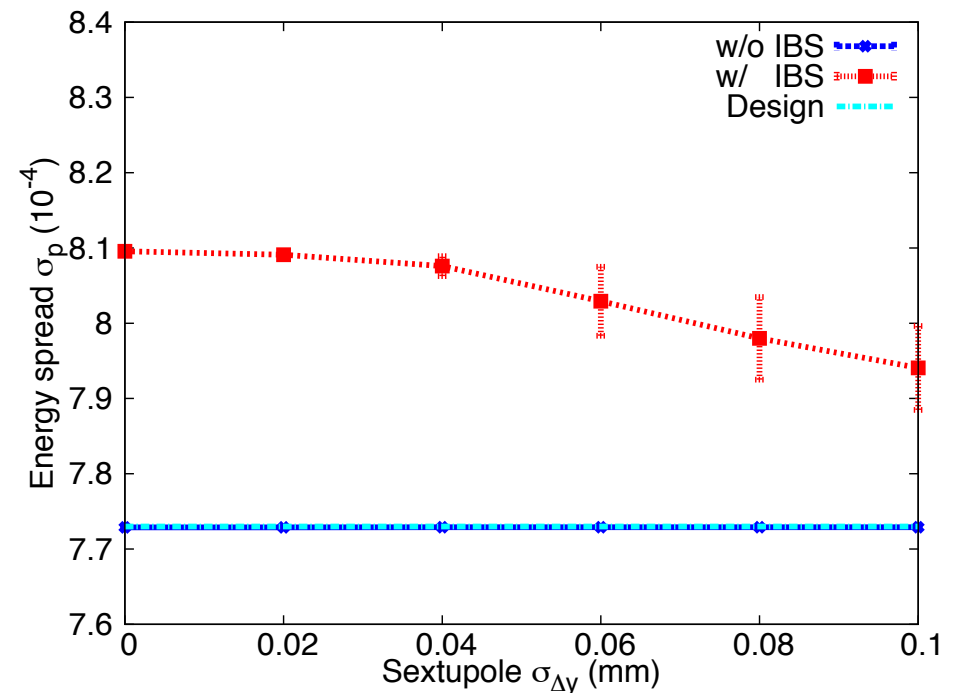
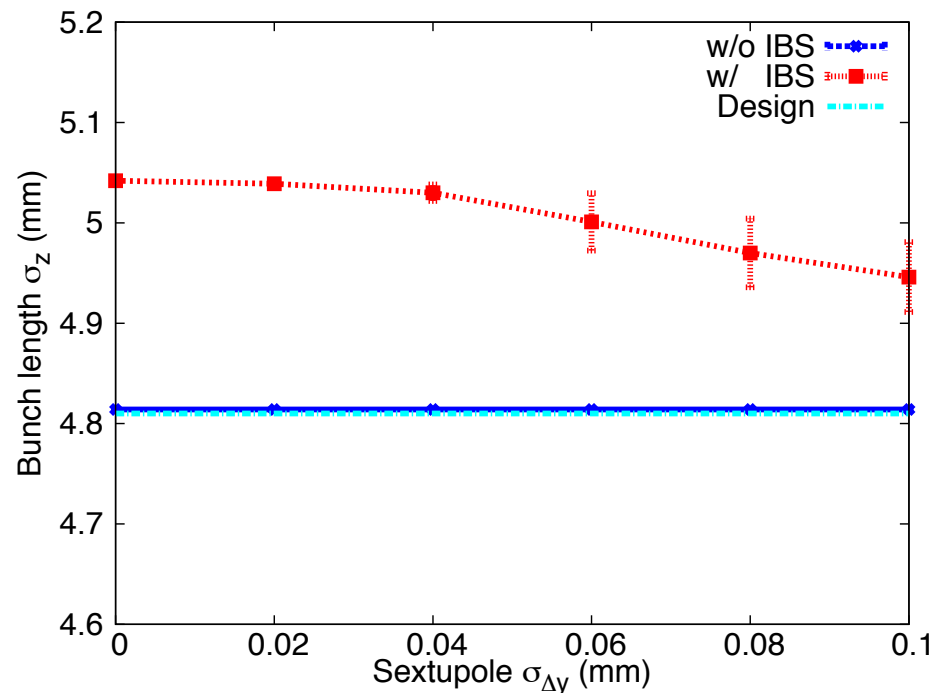
- ϵ_x decrease with increasing errors in sext.
- Tolerance: $\sigma_{\Delta y} < 0.06$ mm w/o IBS, $\sigma_{\Delta y} < 0.05$ mm w/ IBS



1. IBS: LER: sler_1684

➤ Bunch lengthening and energy spread due to IBS (w/ errors in sext.)

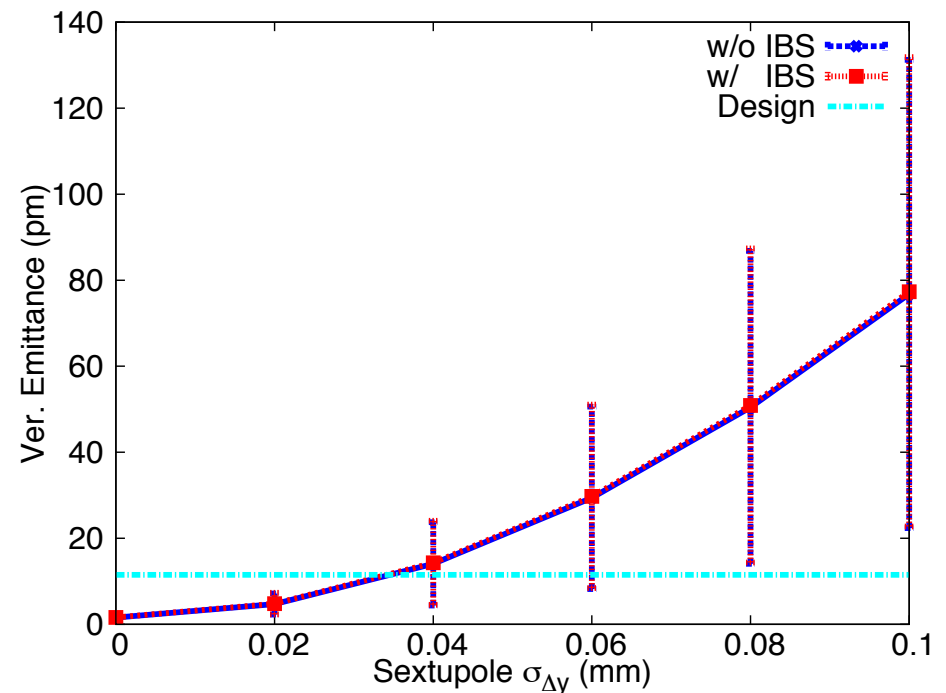
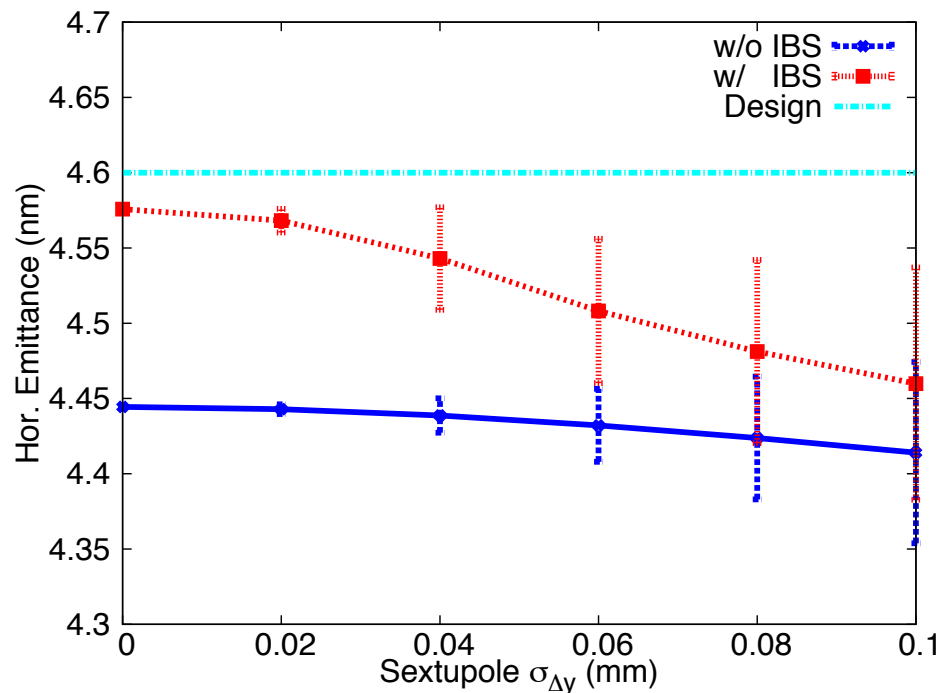
- Both σ_z and σ_p slightly increase due to IBS
- Fairly not negligible in LER



1. IBS: HER: sher_5755

➤ Emittance growth due to IBS (w/ errors in sext.)

- ϵ_x slightly decrease with increasing errors in sext. $\Delta\epsilon_x < 3\%$
- Negligible in vert. direction
- Effects of IBS in HER almost negligible



1. IBS: HER: sher_5755

➤ Bunch lengthening and energy spread due to IBS (w/ errors in sext.)

- Both σ_z and σ_p slightly increase due to IBS
- Fairly negligible in HER
- Effects of IBS in HER almost negligible

