Crosstalk between beam-beam interaction and lattice nonlinearities in the SuperKEKB
- Updated results

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1. Previous results

- Previous results:
  - D. Zhou et al., SuperKEKB optics meeting, Dec. 21, 2012
  - D. Zhou et al., SuperKEKB optics meeting, Jan. 17, 2013

- Issues to be investigated:
  - Tune scan
  - Beam tail (Beam size, lifetime, luminosity?)
2. Tune scan

- Ohmi’s results:
  - Strong synchro-betatron resonances: $2\nu_x - n\nu_s = \text{Integer}$
  - Beam-beam force contains $x^2z^2$ term
2. Tune scan: LER: sler_1682

- Synchro-betatron resonances seen in pure WS simulations
- Tune of (44.53,44.57) is good (?)
- Need more data to observe resonance in SAD simulations
- Effects of lat. nonlin. not depend on tune?
2. Tune scan: HER: sher_5753

- Resonance width smaller than LER in pure WS simulations
- Tune of (45.53, 43.57) is almost OK (?)
- Need more data to observe resonance in SAD simulations
- Effects of lat. nonlin. not depend on tune?

![Graph showing lum. vs. \( v_x \) with BBWS and SAD lines]