Results of December 15 Hollow Electron Beam Collimation Studies

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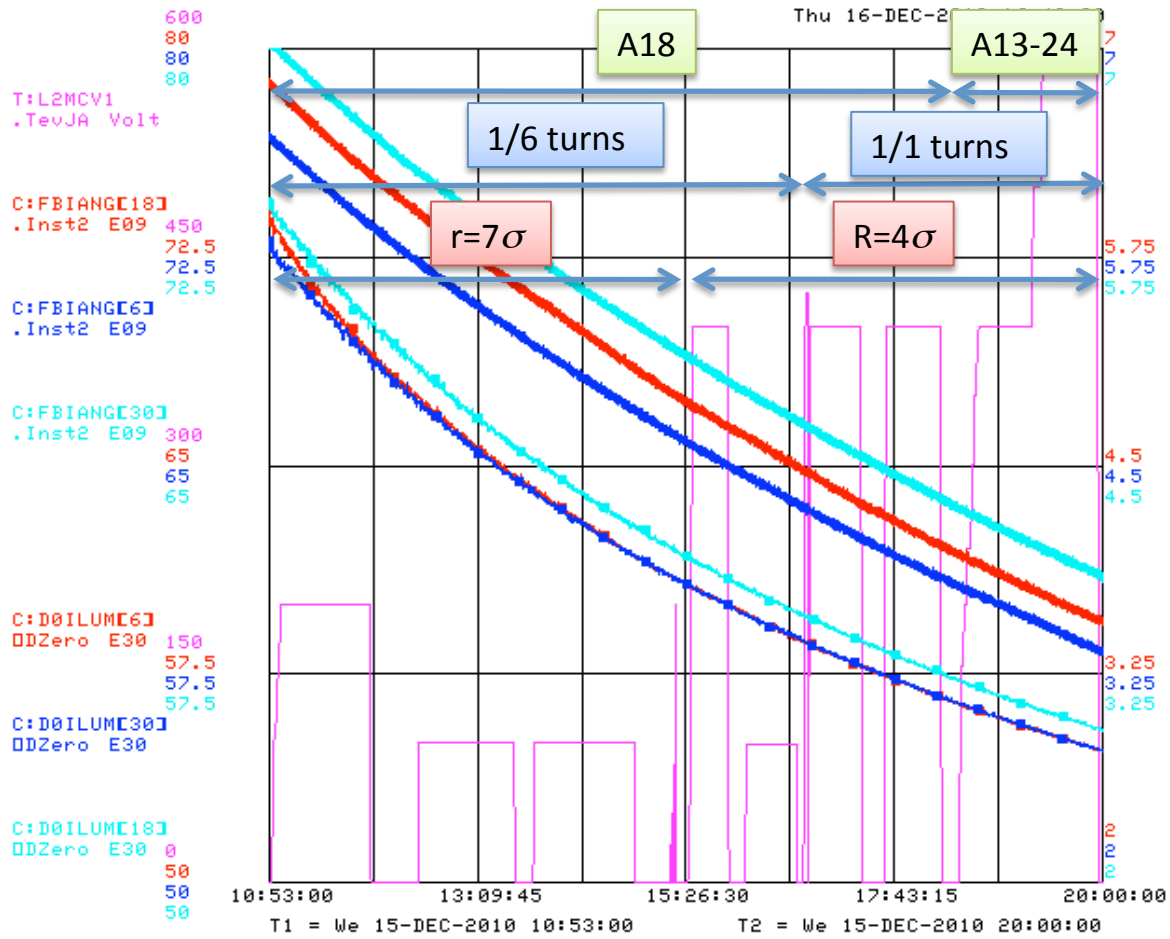
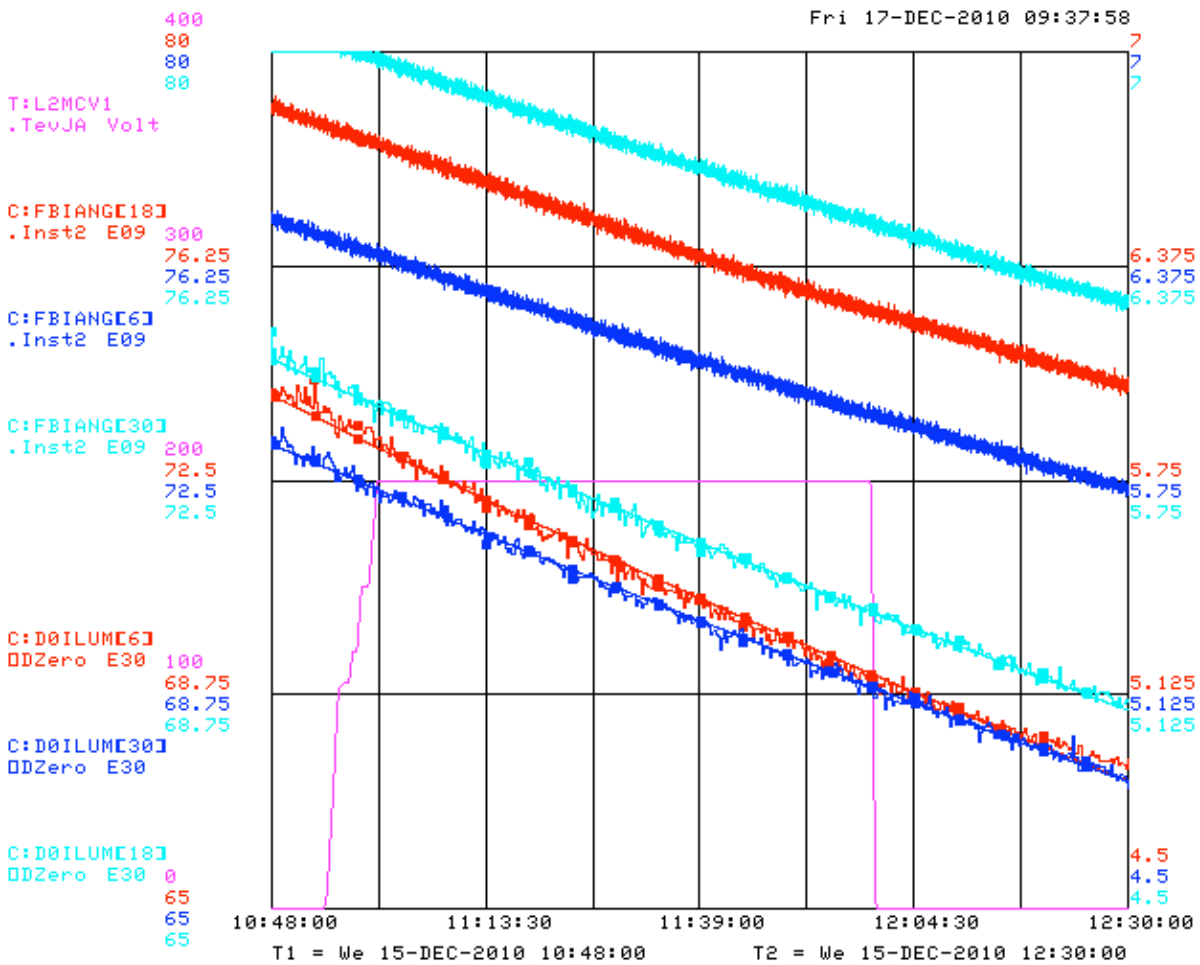
Outline

- Parasitic studies during store 8365
- Goal: evaluate long-term effect of HEBC
- Stages
  1. Single antiproton bunch. Pulsed every 6 turns (resonance excitation)
  2. Single antiproton bunch. Pulsed every turn.
  3. One train – 12 antiproton bunches

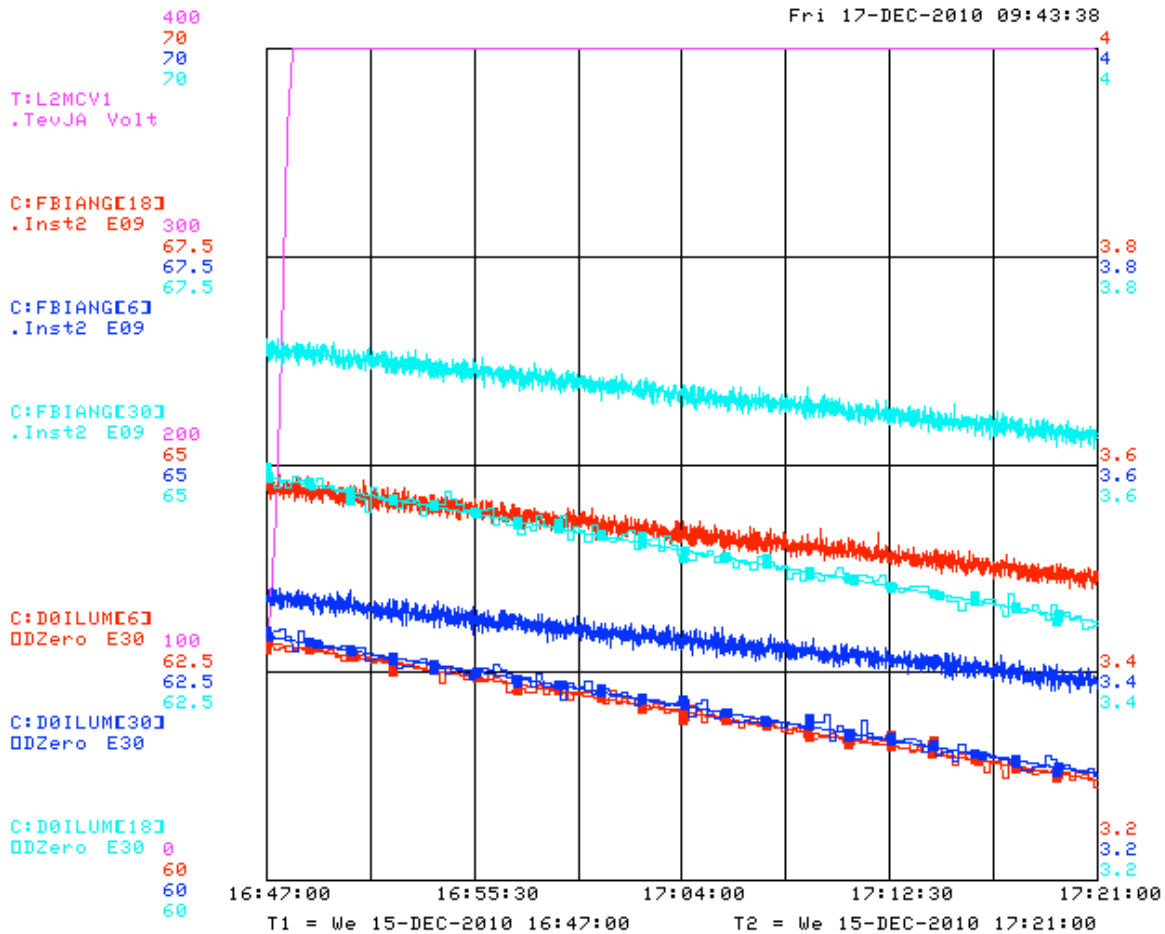


Experiment #1: A18, pulsed 1/6 turns



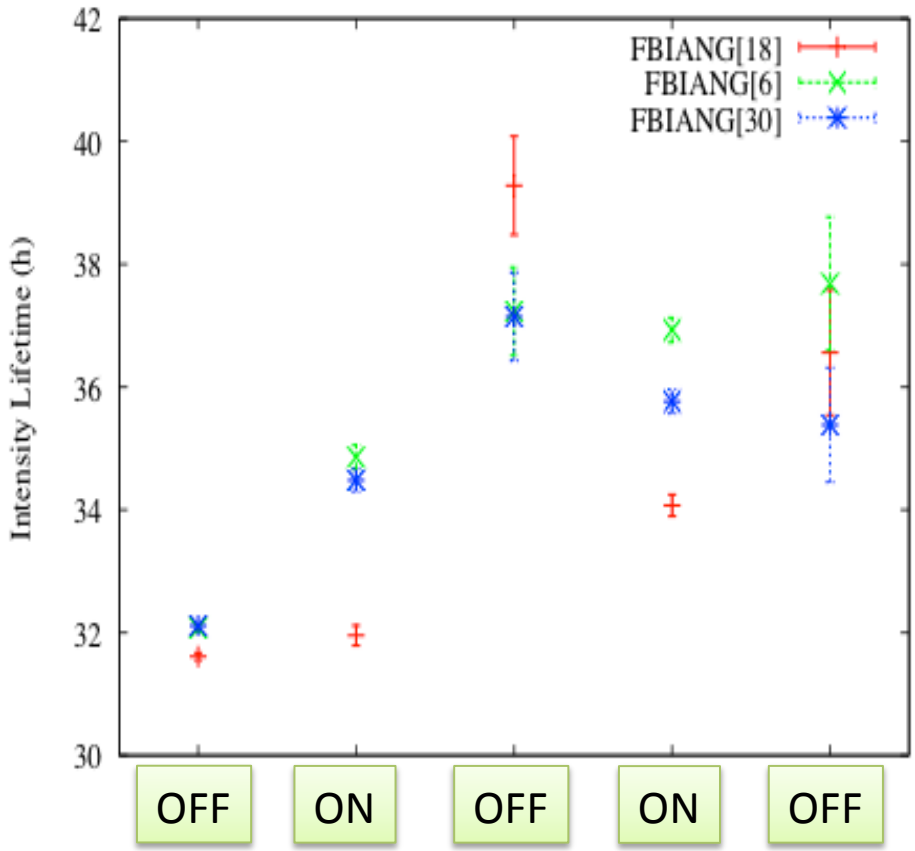
Luminosity lifetime degraded by ~10%, no effect on beam lifetime

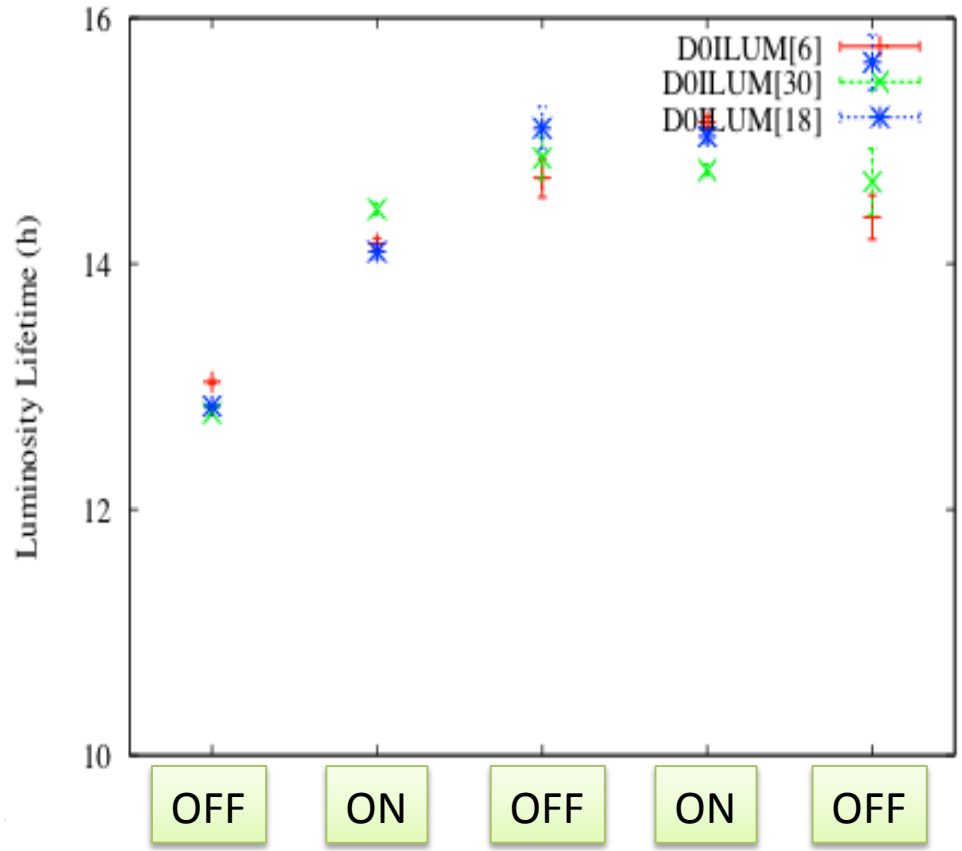
Experiment #2: A18, pulsed every turn



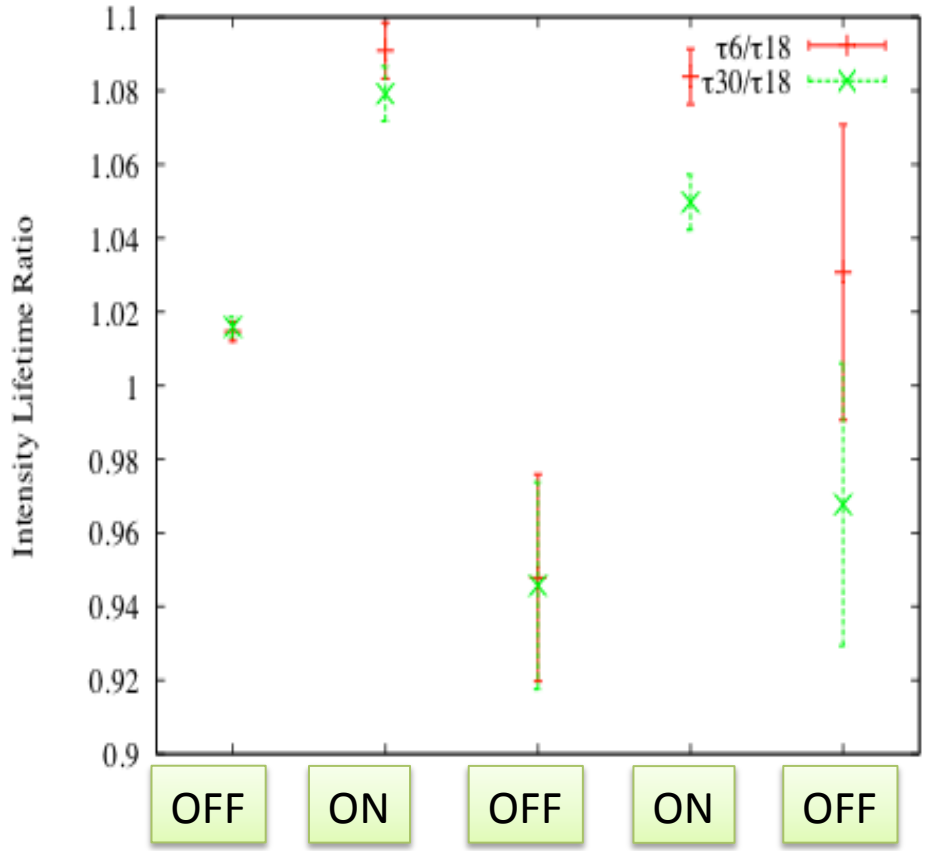
No effect on luminosity lifetime, beam lifetime ~10% lower!

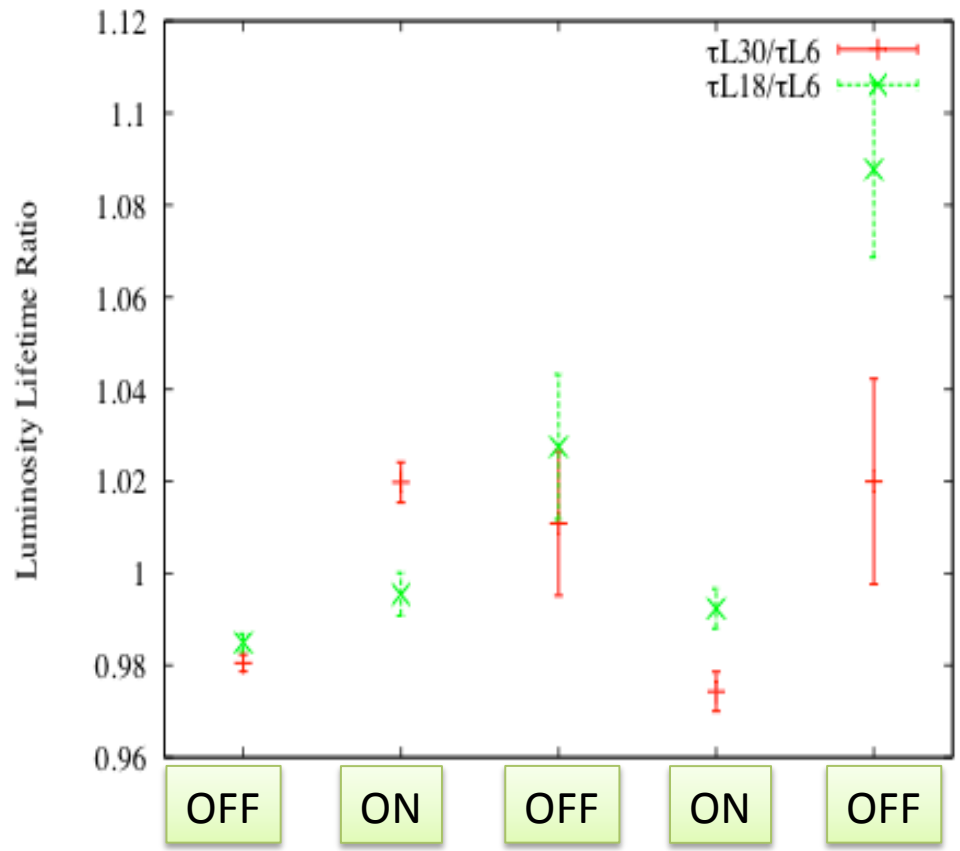
Experinent #2 in numbers





Experinent #2 in numbers





Summary

- Resonant pulsing causes luminosity lifetime degradation but no particle losses.
- Pulsing every turn, we observed collimation! The effect is significant and reproducible.