CORNELL UNIVERSITY LEPP
LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS

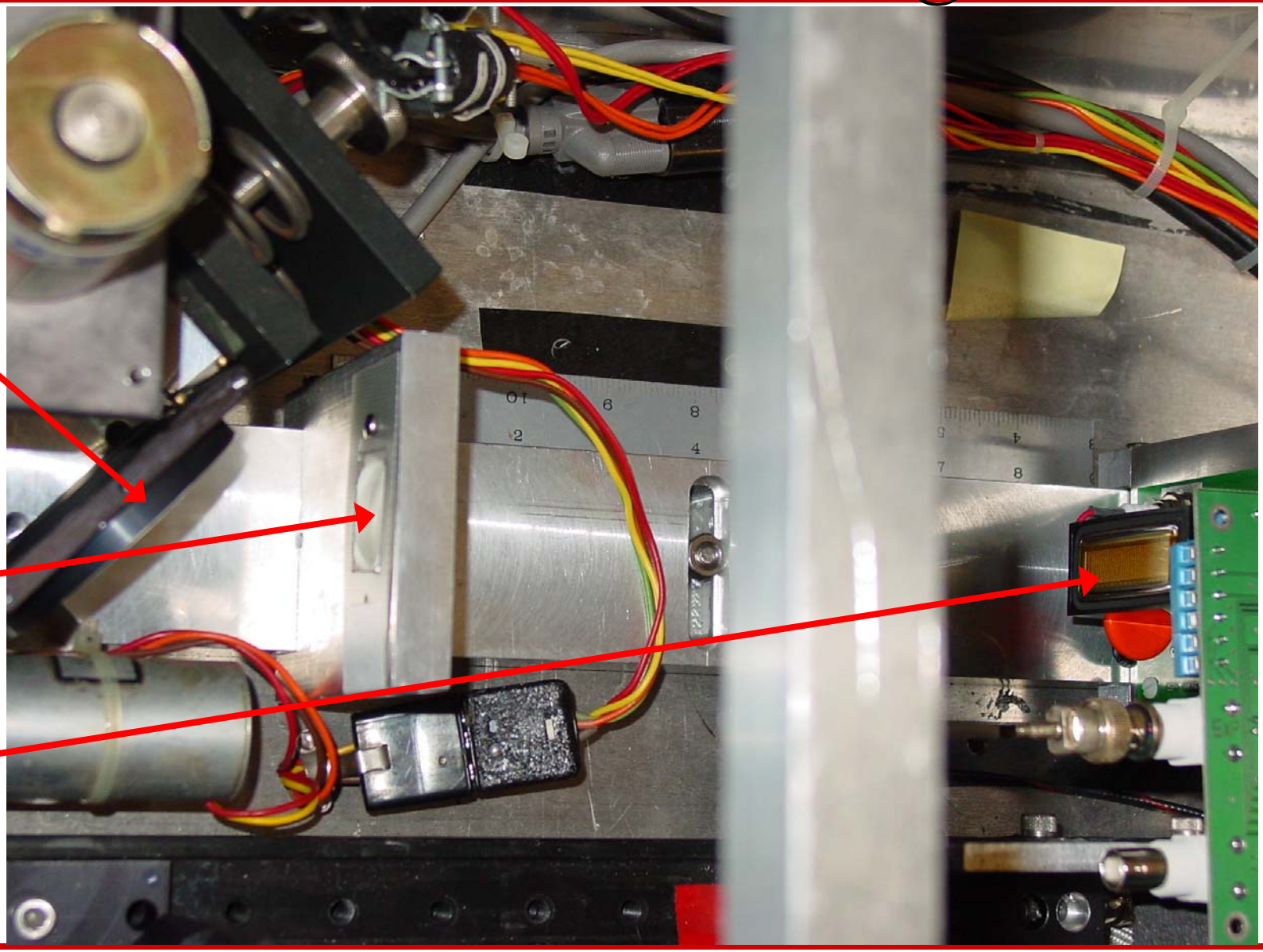
e^- Bunch-by-Bunch Vertical Beamsize Monitor @ 23W

Nominal Magnification ~3.6x

Pellicle Beam-Splitter

f = -50 mm Lense & 500 nm Filter

32 Channel Linear PMT Array



Timing Scan with 8x5 e-

- 600 V on PMT
- Channel-by-channel scan through full timing range

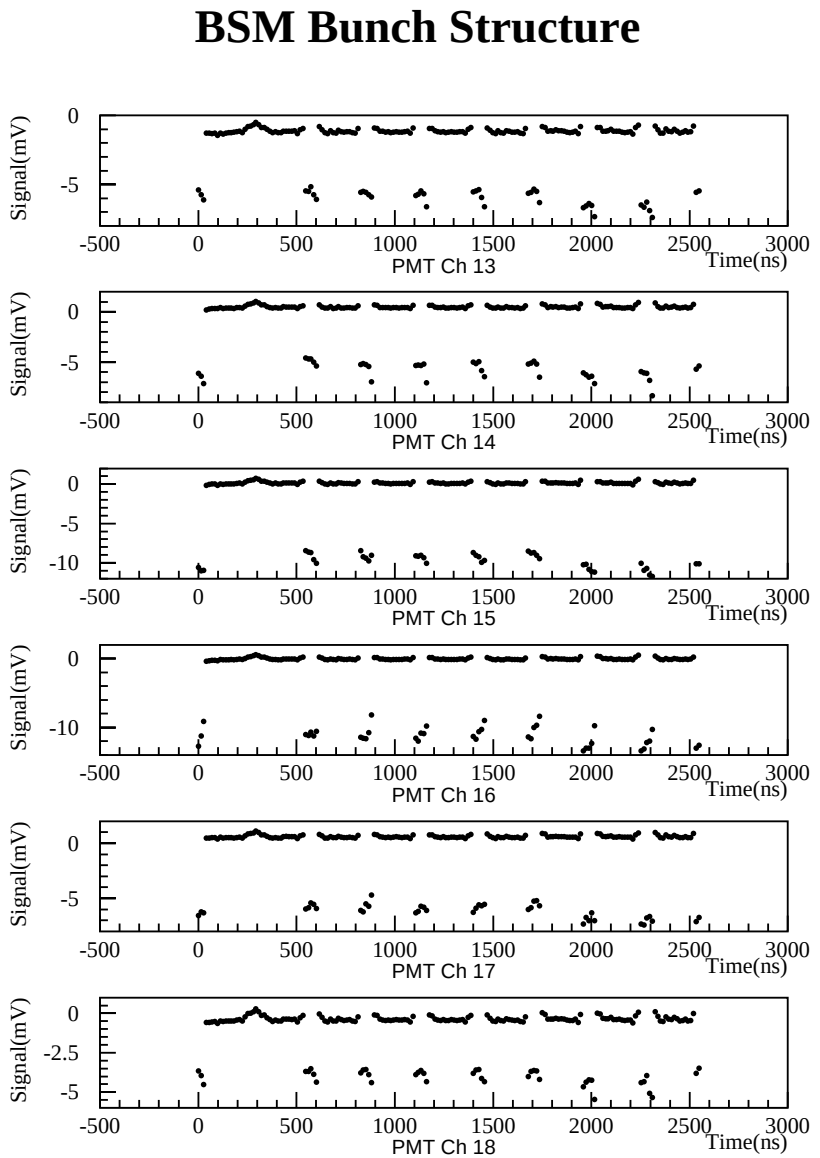
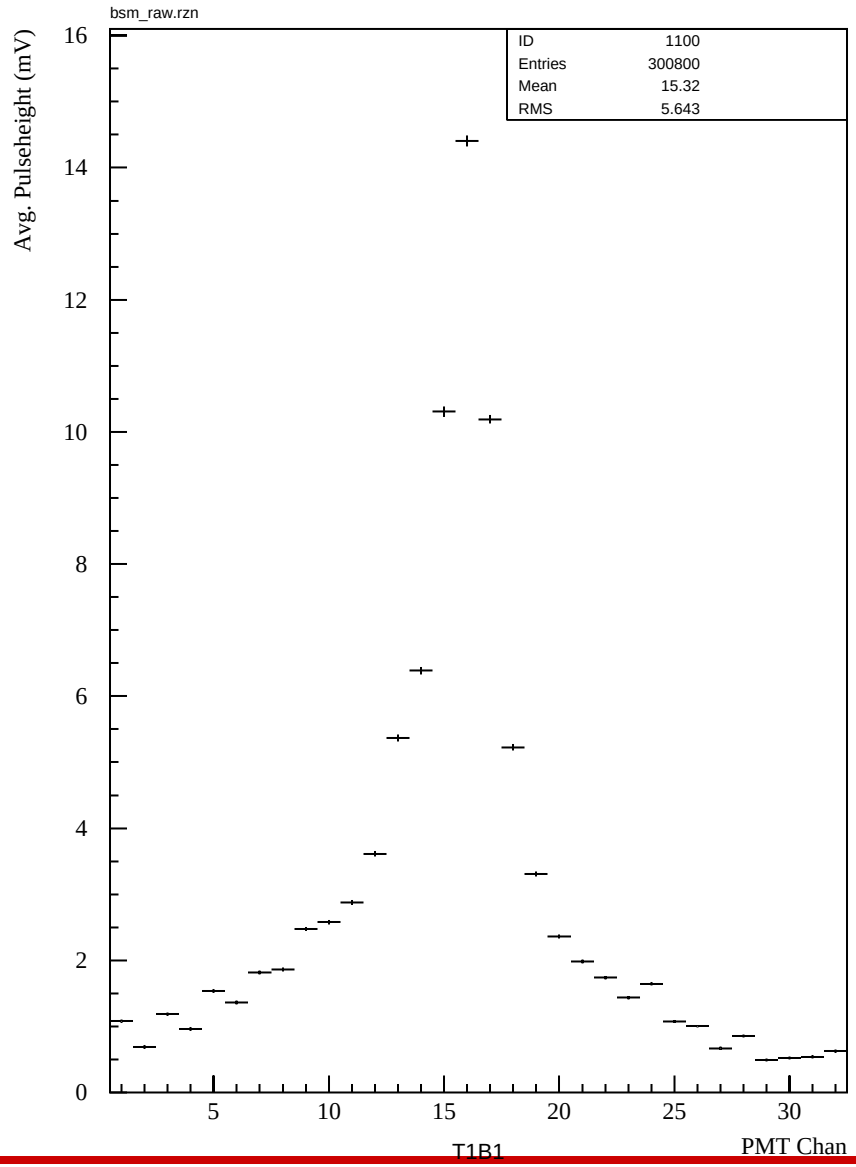


Image Distribution

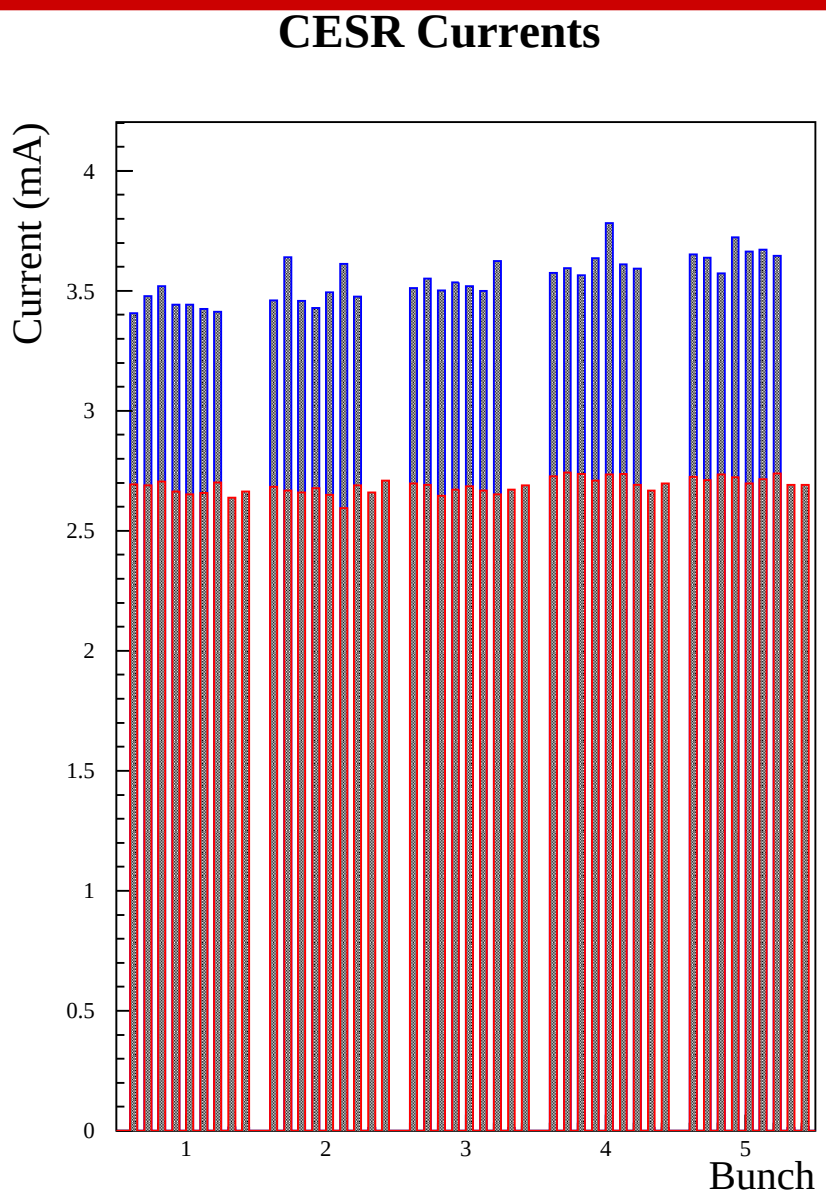
BSM Distribution

- PMT channel pitch = 1mm
- Ch 1 at bottom
- Pedestal-subtracted data
- Clearly visible core
  - Low side shoulder
  - Significant background
  - ⇨Reflections in box?
- Plan to add light shroud next Tuesday



CESR Conditions

- 9 x 5 x 2.7 mA e^+
- 7 x 5 x 3.5 mA e^-
- e^- beamsize ~ 420 μm



Bunch-to-Bunch Comparison

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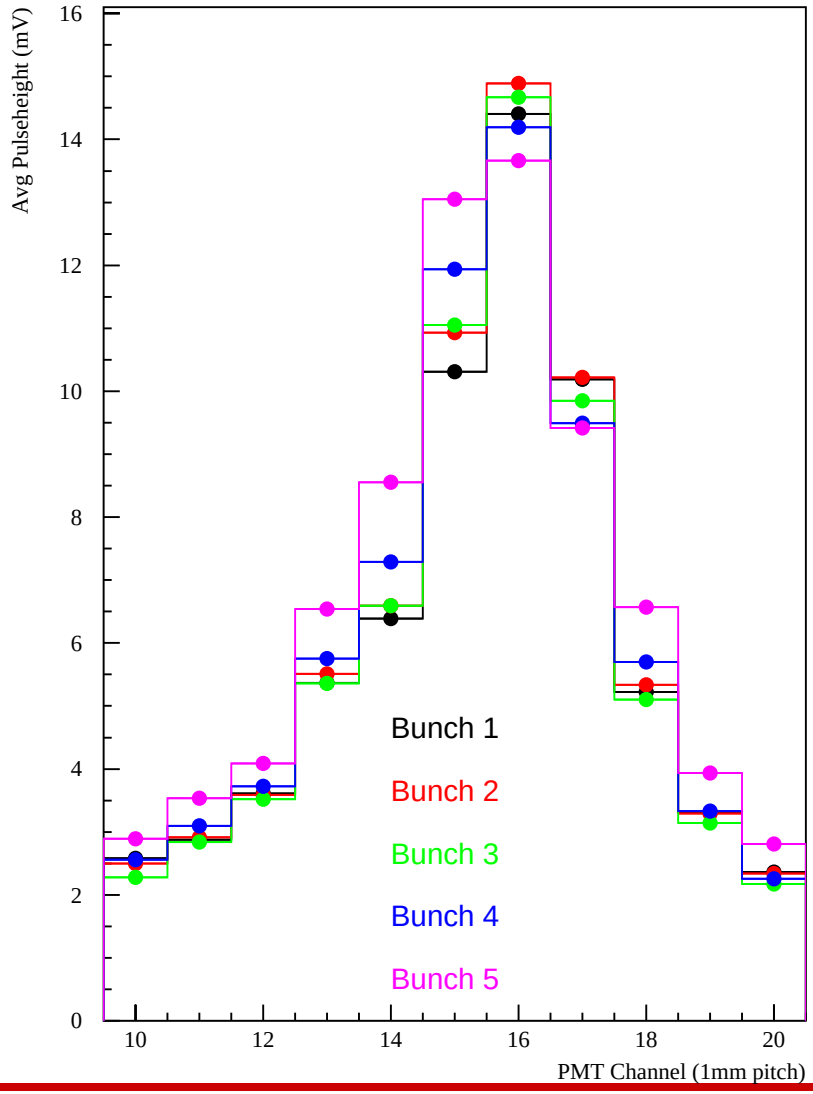
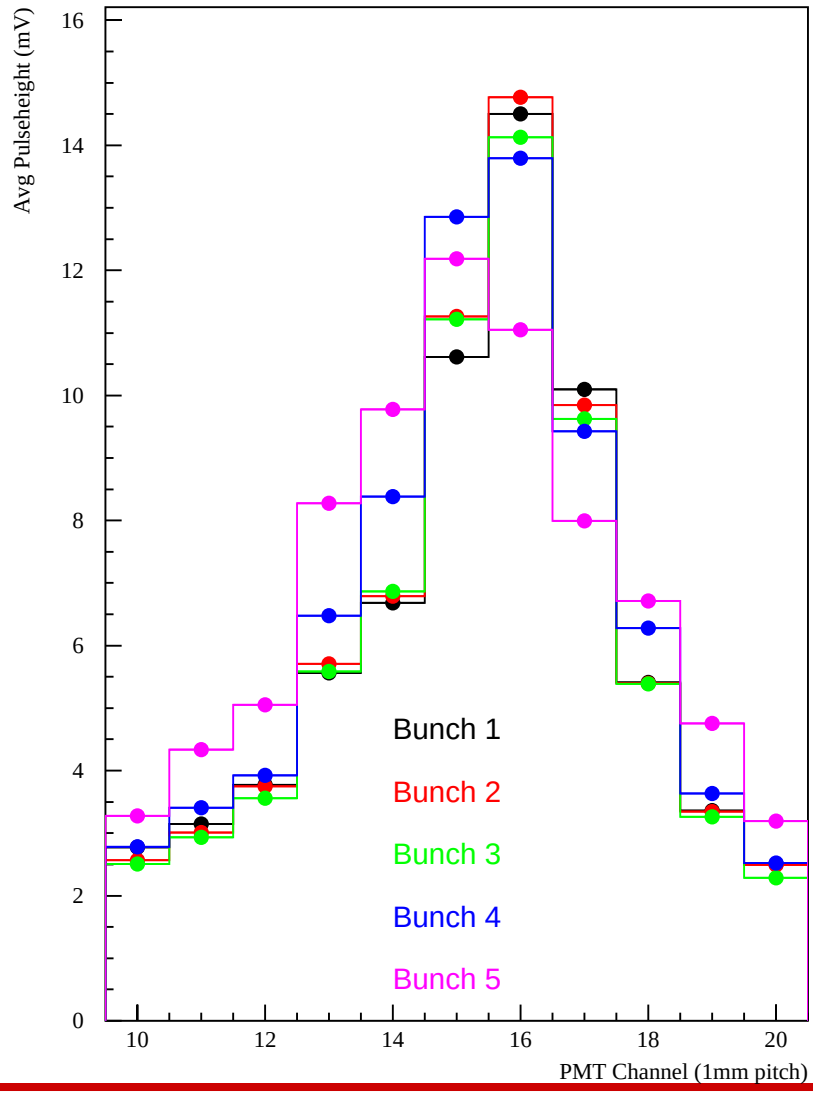
Train 1



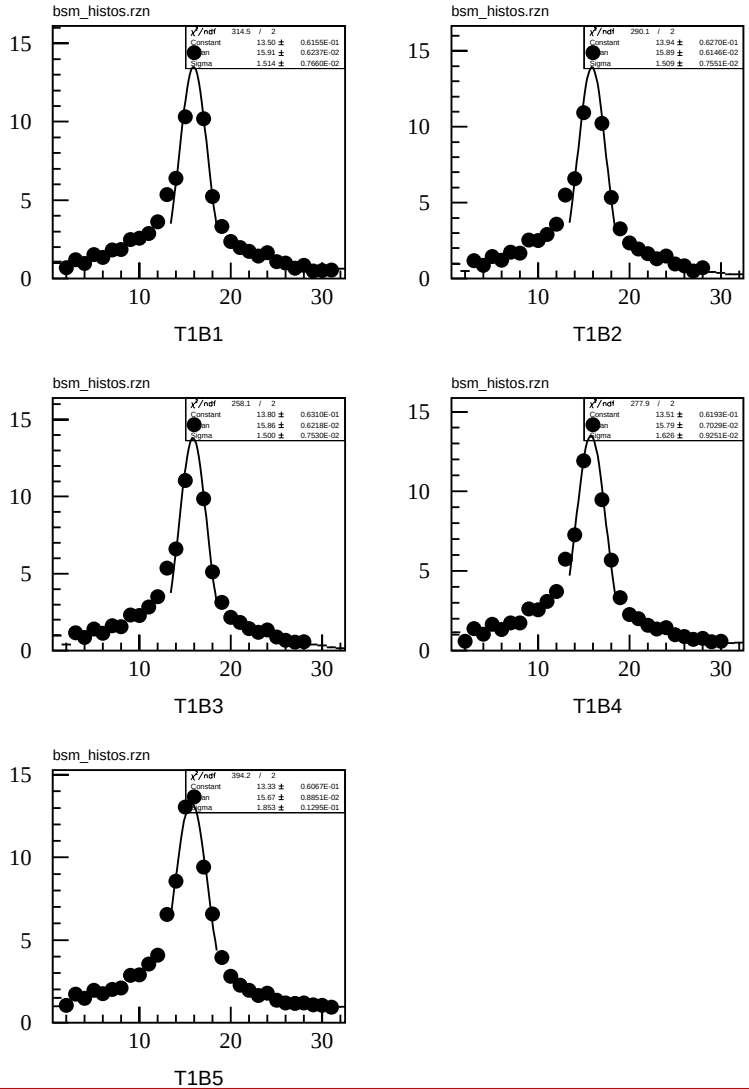
Train 5



Systematic Comparison

- Gaussian fit to core
  - 5 channel range
- Complicated signal shape places systematic limit on absolute numbers
- Relative comparisons should be highly informative

23W BSM Train 1 Fits



Centroid and Sigma

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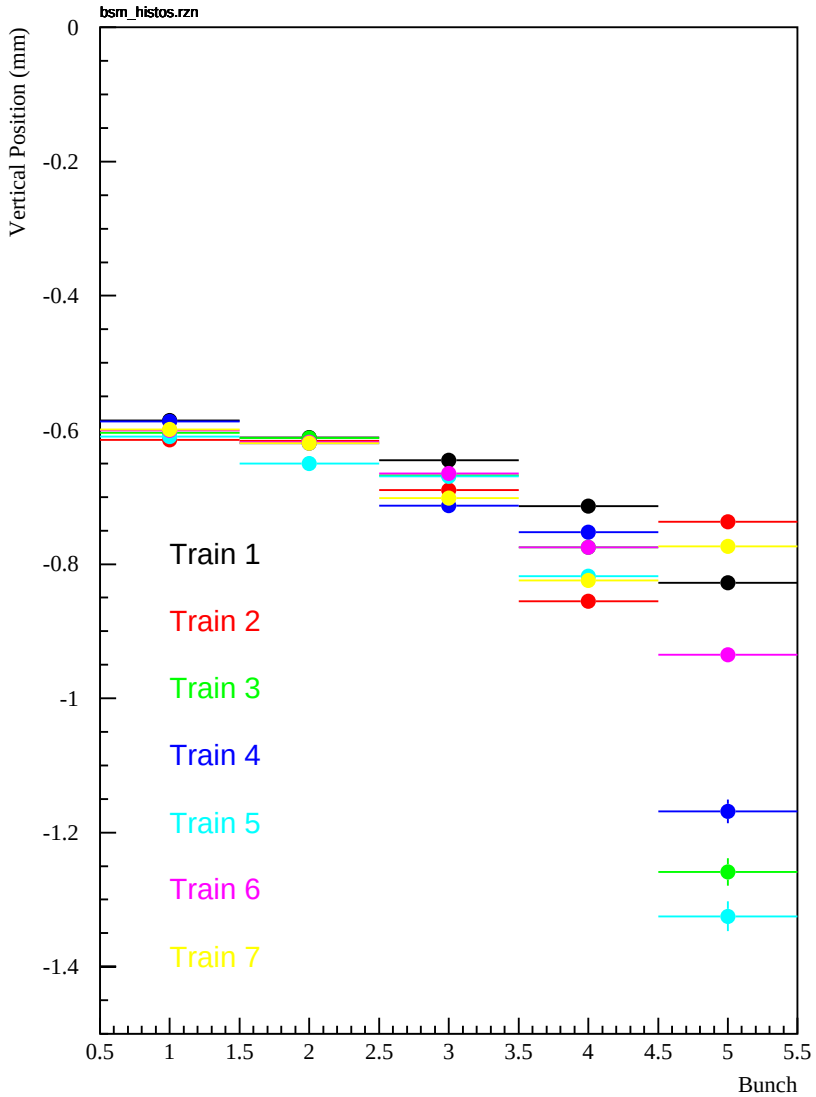
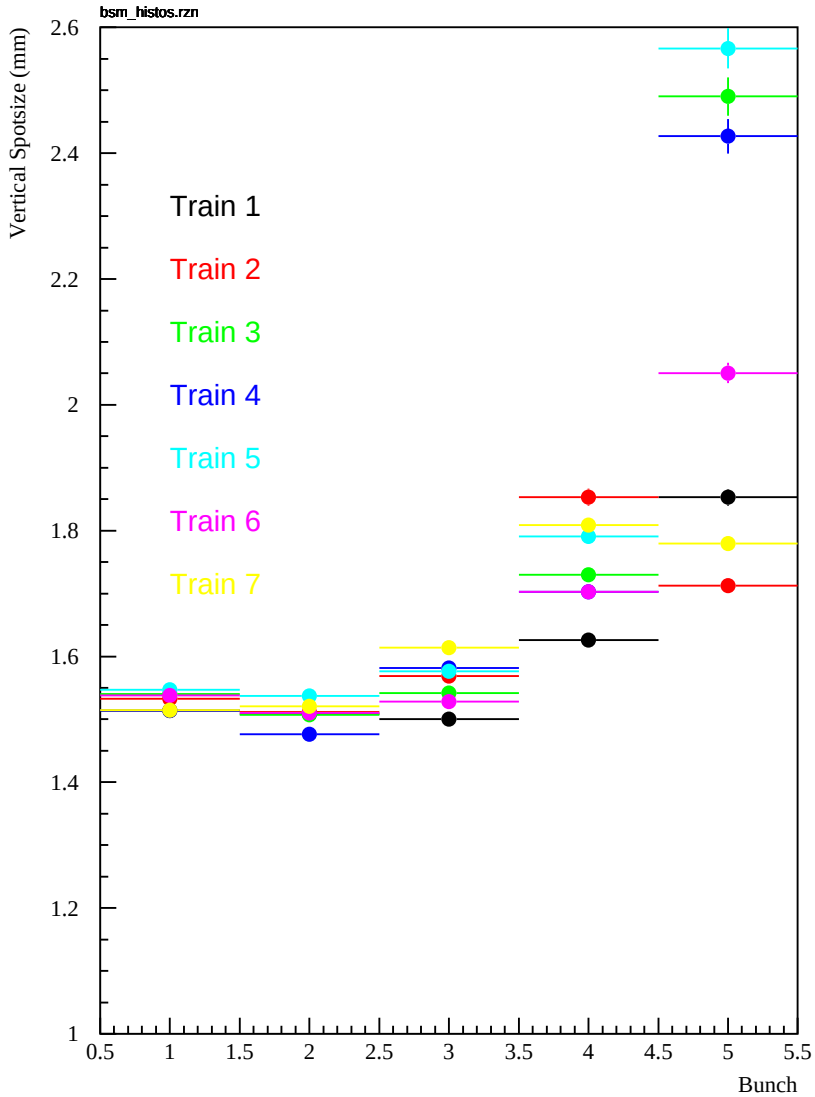
23W BSM PMT Position



23W BSM PMT Spotsize



Projection to Source Point

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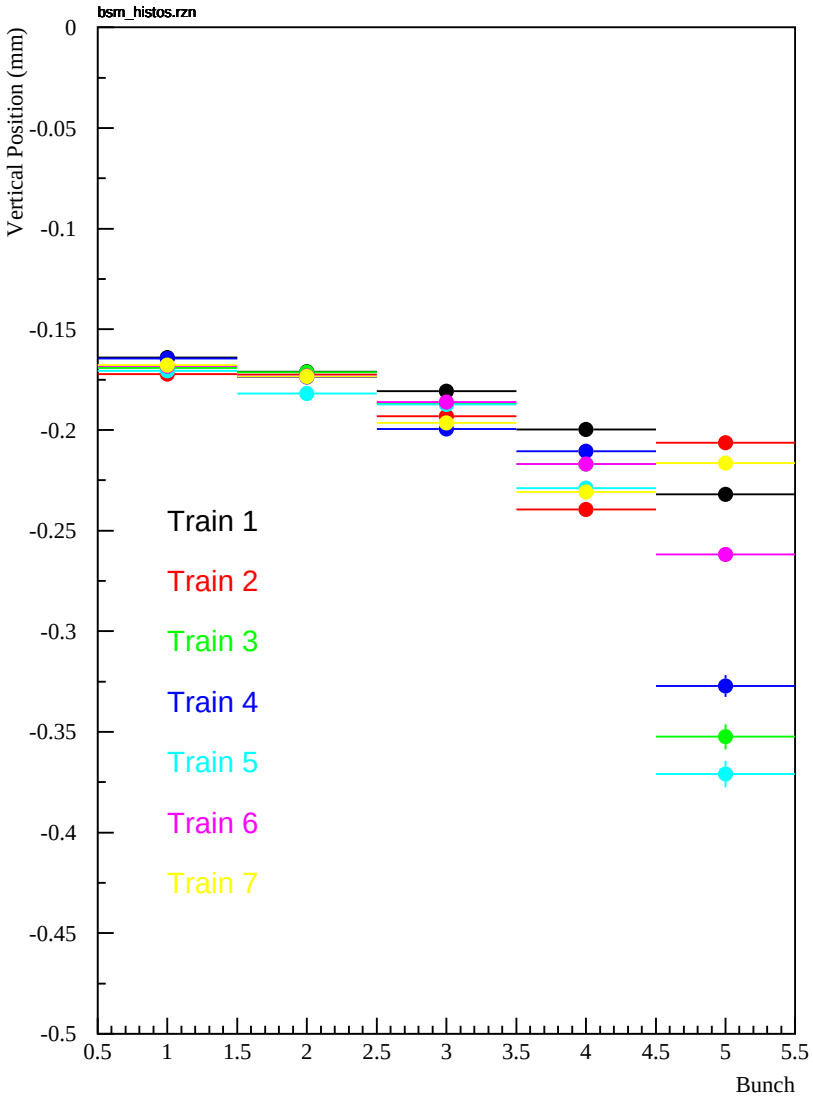
05/04/28 16.34

23W BSM Source Position (No Calib)



23W BSM Source Size (No Calib)