

CDF On-line Beam Width Measurements

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3 Methods of Calculating Beam Widths

- On-line SVT tracks
- Beamline Database
- Offline – running on real reconstructed vertices

Status of the On-line Measurement

- C:SVTWX[0:5], C:SVTWY[0:5]
- Fairly new tool, available since July
- Divides the silicon detector up into 6 separate “half barrels”
- Still work in progress – namely validating the on-line numbers with those from the other two techniques to insure consistency
- Validation is complicated (runs vs stores etc)
- Work is in progress now that we once again have beam and a working silicon detector

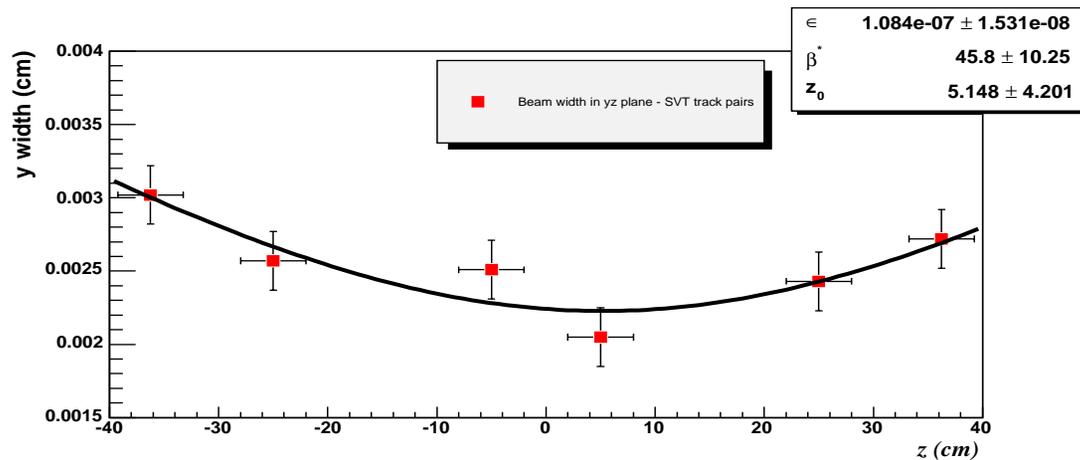
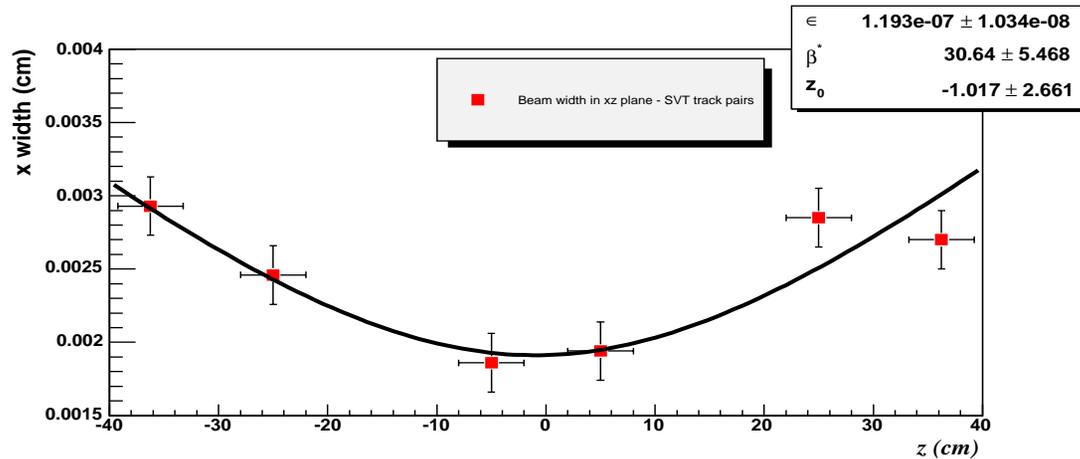
Comments Continued

- Fits in “X” on-line look reasonable
- Fits in “Y” on-line clearly shows a problem

- Work List
 - Continue to validate the different measurements at CDF
 - Fix the “Y” fit problem
 - Reduce the jitter (frequency) in which we fit

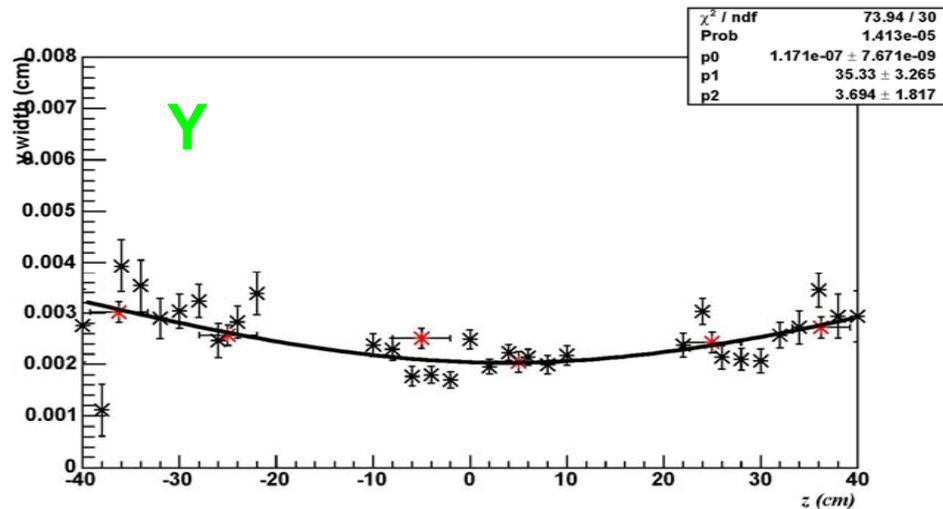
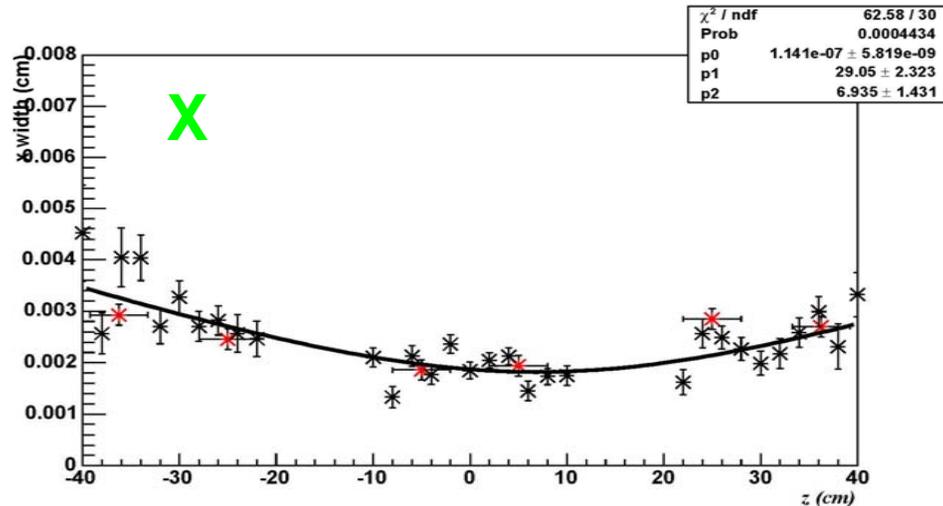
Shape and Fit for the Online Method

- Store 3873
- Run # 191534



Comparison On-line vs Off-line

- Same store and run as previous plot
- The shape of both on-line and offline fully reconstructed vertices are overlaid on each other.
- The Statistics and fit shown here are from the offline measurements
- Points in Red are the on-line data points
- Pretty Reasonable Results
- See next Page for Results



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Results from Store 3873

	Offline	Online
Emit_x	$(1.1 \pm 0.05) \times 10^{-7}$	$(1.2 \pm 0.1) \times 10^{-7}$
Beta*_x	29.1 ± 2.3	30.6 ± 5.5
Z0_x	6.9 ± 1.4	-1.0 ± 2.6
Emit_y	$(1.2 \pm 0.08) \times 10^{-7}$	$(1.1 \pm 0.2) \times 10^{-7}$
Beta*_y	35.3 ± 3.3	45.8 ± 10.3
Z0_y	3.7 ± 1.8	5.1 ± 4.2

Issues with these results

- $Z0_x$ central values way off
- $X0$ errors large
- Beta^* errors are large
- Shapes look quite reasonable – part of the discrepancy could be how the fit is performed

Same store, later Run

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Emit_x $1.6 \pm 0.1)e^{-7}$

Beta*_x 29.1 ± 2.3

Z0_x 6.9 ± 1.4

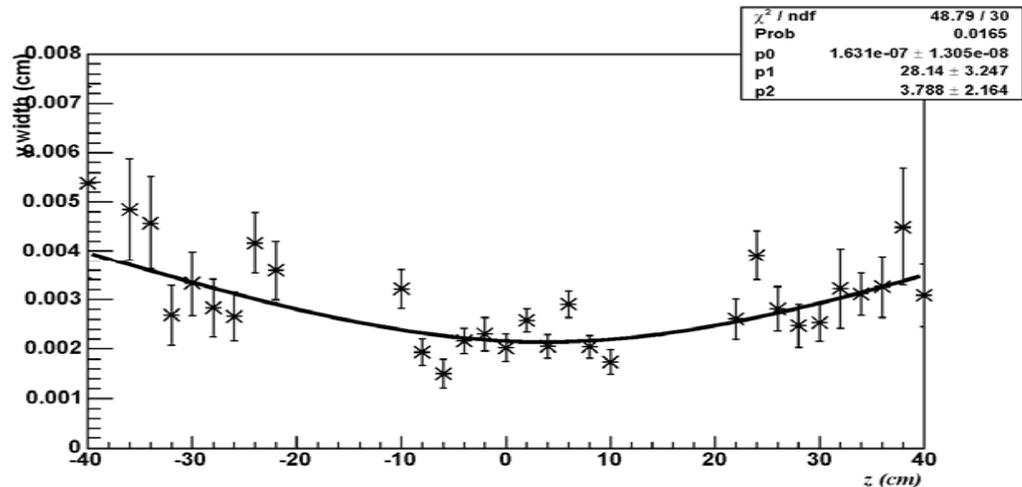
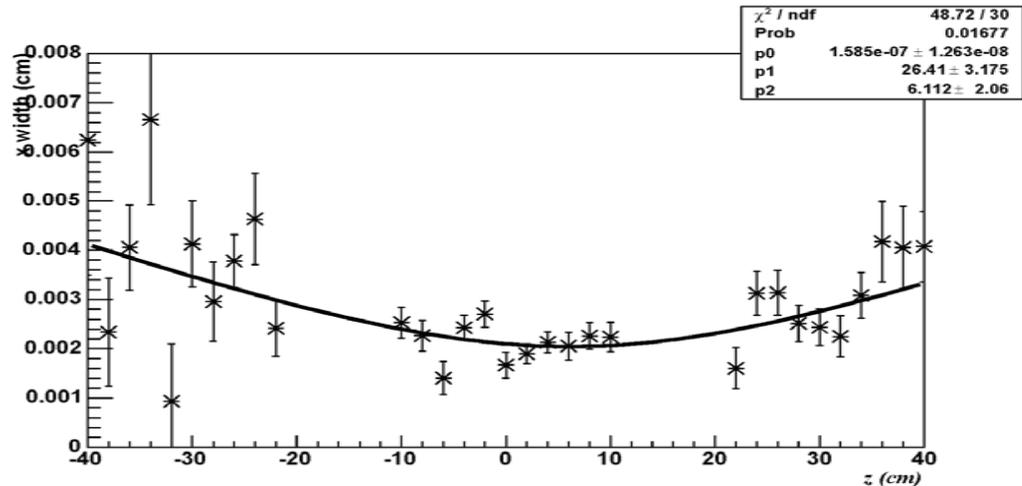
Emit_y $(1.6 \pm 0.1)e^{-7}$

Beta*_y 28.1 ± 3.2

Z0_y 3.8 ± 2.2

Results very comparable
to previous Run

See a slight broadening



Lest you think we are done....

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Store 3869
Run 191430
Statistics are low
Agreement poor

