

SVT Status Report

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SVT Hardware Update

- All SVT boards installed since ~ January 2001
- System extensively tested standalone
- SVT connections to/from L2 and XFT/XTRP tested as well
- Everything works as expected
- Ongoing activities:
 - Minor changes in the firmware
 - Completing XFT fanout boards

SVT Software Update



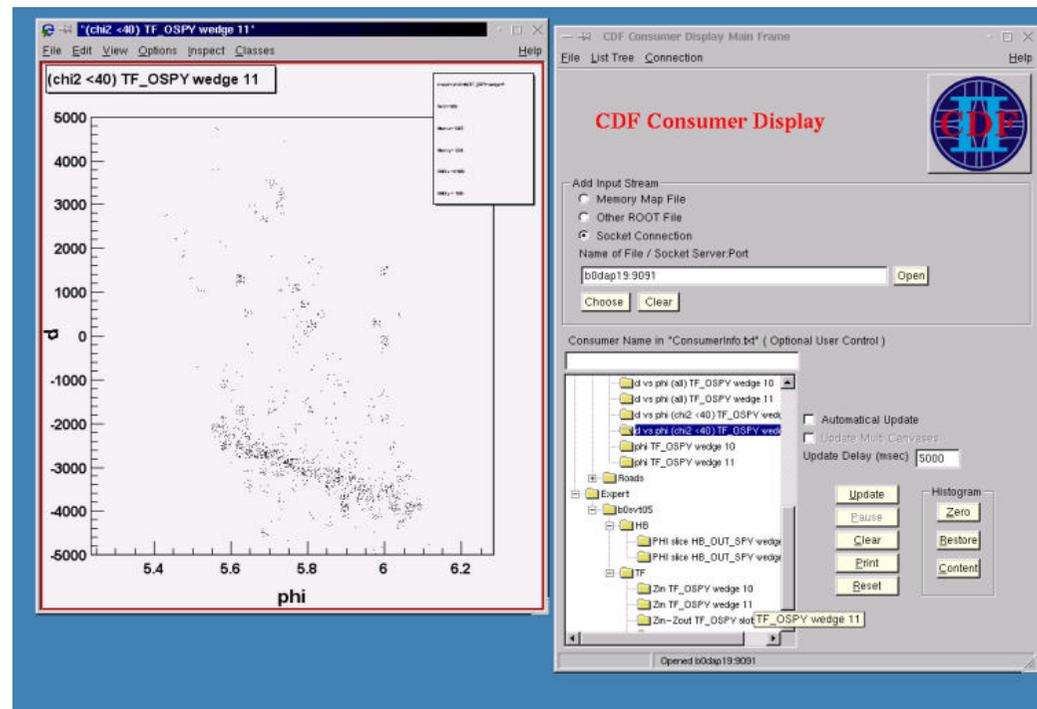
- Progress in different areas:
 - SVTSIM simulation package used for offline validation/studies and online initialitation and monitoring task
 - SVTmon module in TRIGMON to decode and check SVTD bank and produce monitoring histograms
 - SPYMON monitor SVT performance using SVT spybuffers; new functionality to send its own histograms to Consumer Operators.

SVT Diagnostic



Both SVTSPYMON
and SVTMON
Histograms are already
available to CO's to
display.

Analysis will improve
and better diagnostic
for the shift crew will
be available soon.



SVT Goals and Schedule



- Nov 00 (Comm. Run)
 - ✓ Hit finding
 - ✓ Track finding with AM
 - ✓ See note 5511
- Apr 01
 - ✓ Track fitting in real time for 3/72 of SVXII with no XFT info and 4/4 layer algorithm
 - ✓ Exercise beam finding
- Jun 01
 - Silicon+XFT tracking for all available SVXII
 - Online beam finding
 - Test on L2 cuts on impact parameter
- Late Summer/Fall
 - Try 4/5 algorithm
 - Additional hardware may be required
 - Include Layer 00

SVT impact parameter vs phi distribution in 36X36 stores

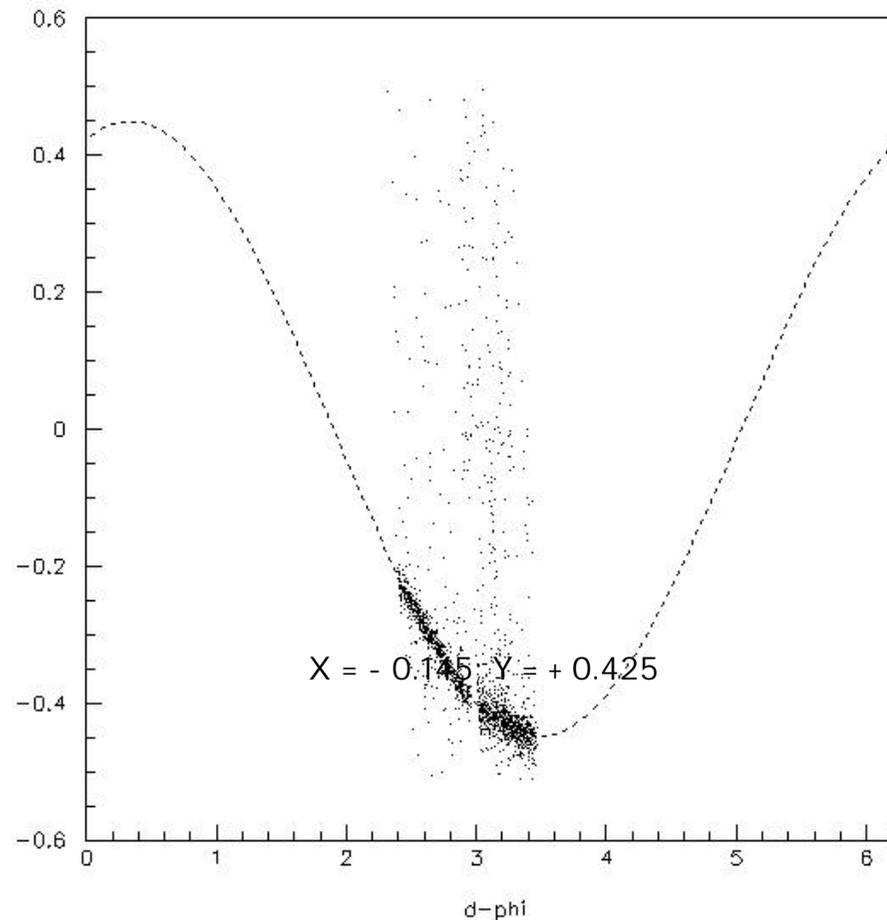


NO XFT info
in track
finding/fitting

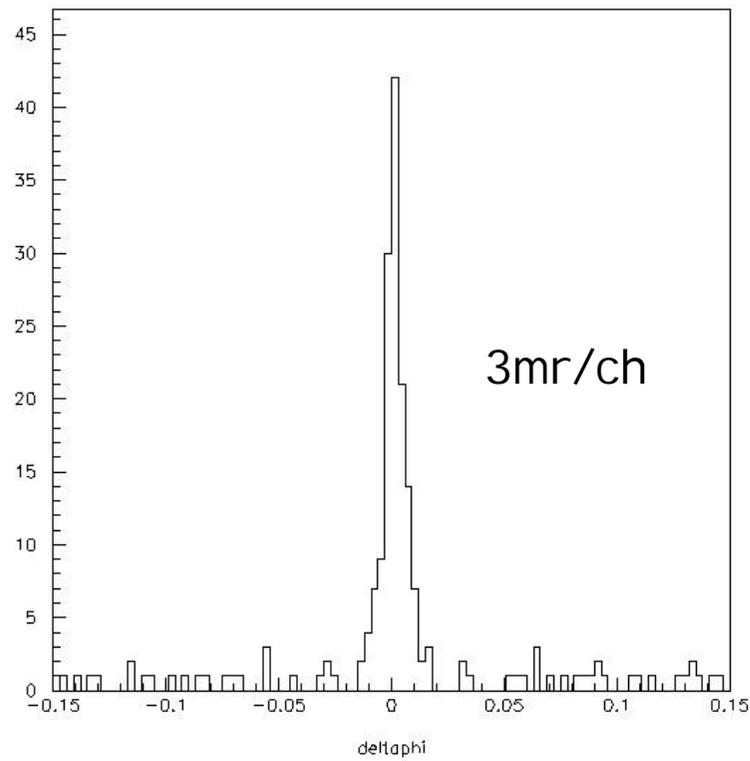
↓

More background
expected

SVT raw: Silicon only Tracking



COT_phi - SVT_phi

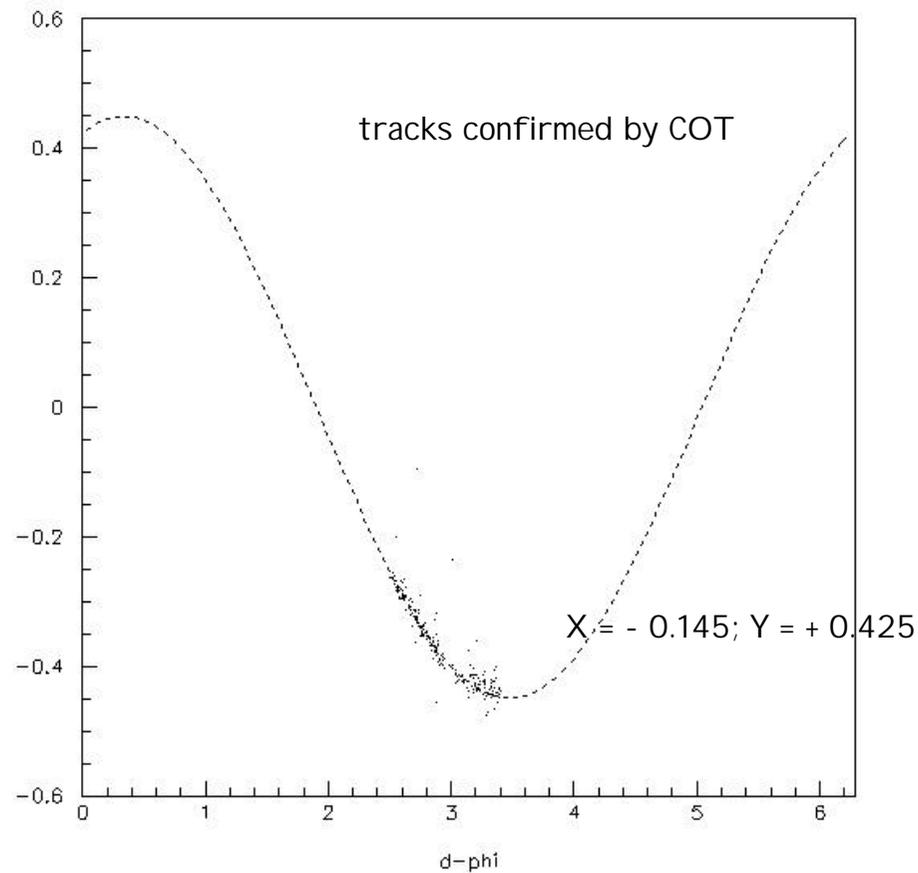


delta_phi

SVT Beam Finding (standard fitting method)



SVT raw: Silicon only Tracking



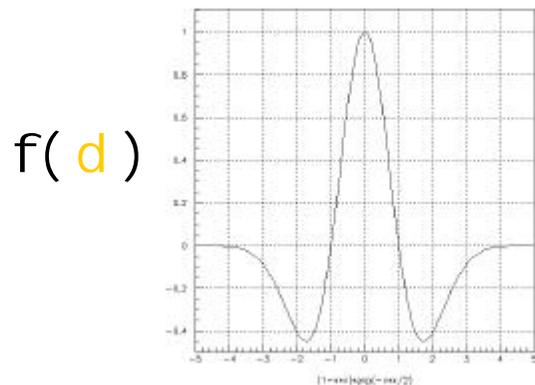


"2-D Filtered Backprojection"

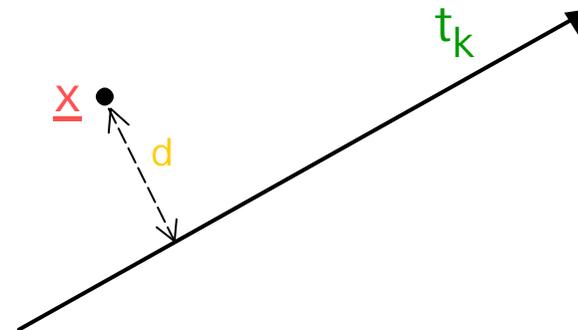
To reconstruct x-y density of track vertices we can use the same imaging algorithm as used in Positron Emission Tomography.

$$\rho(\underline{x}) = \sum_k f(d(\underline{x}, t_k)) \quad \text{sum is over all tracks } t_k$$

$d(\underline{x}, t_k)$: distance between point $\underline{x} = (x,y)$ and track t_k



d



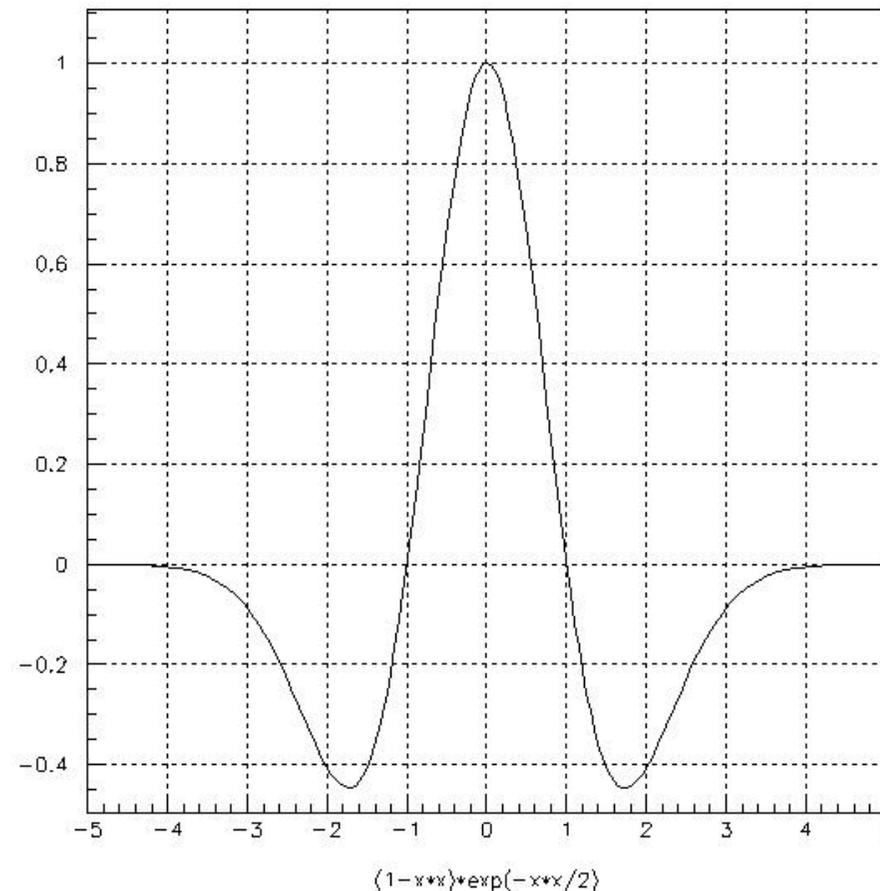


SVT Beam Finding

Weighting Function
for the tomography
method:

$$(1-x^2)*e^{-(x^2/2)}$$

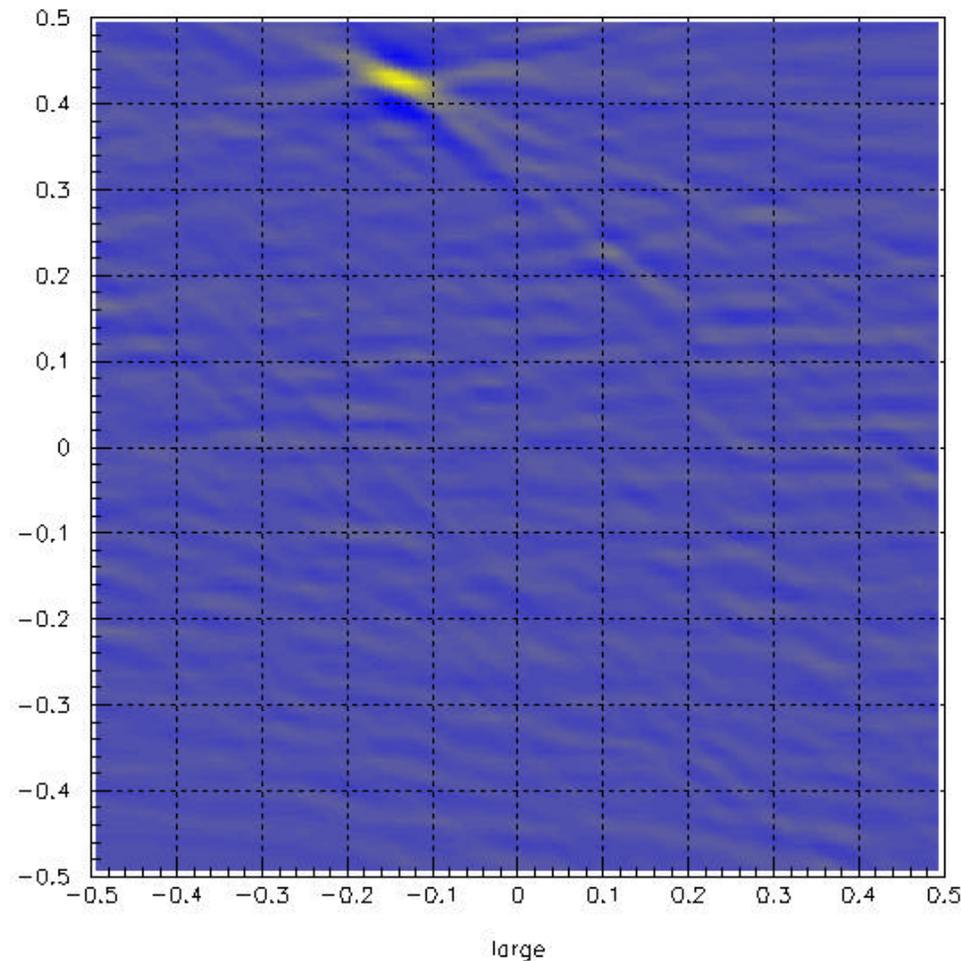
Width determined by
measurement
resolution and desired
precision...



SVT Beam Finding (tomography method)



The method is
expected to be
less sensitive
to background!



SVT Impact Parameter Resolution from 36x36 store



Impact parameter from
Tracks with $P_t > 2$

$$\sigma \approx 90 \mu\text{m}$$

Not included:

- Using innermost 4 layer
- XFT track info
- alignment corrections
- beam displacement

Title:
plots.ps (Portrait A 4)
Creator:
HIGZ Version 1.27/02
Preview:
This EPS picture was not saved
with a preview included in it.
Comment:
This EPS picture will print to a
PostScript printer, but not to
other types of printers.