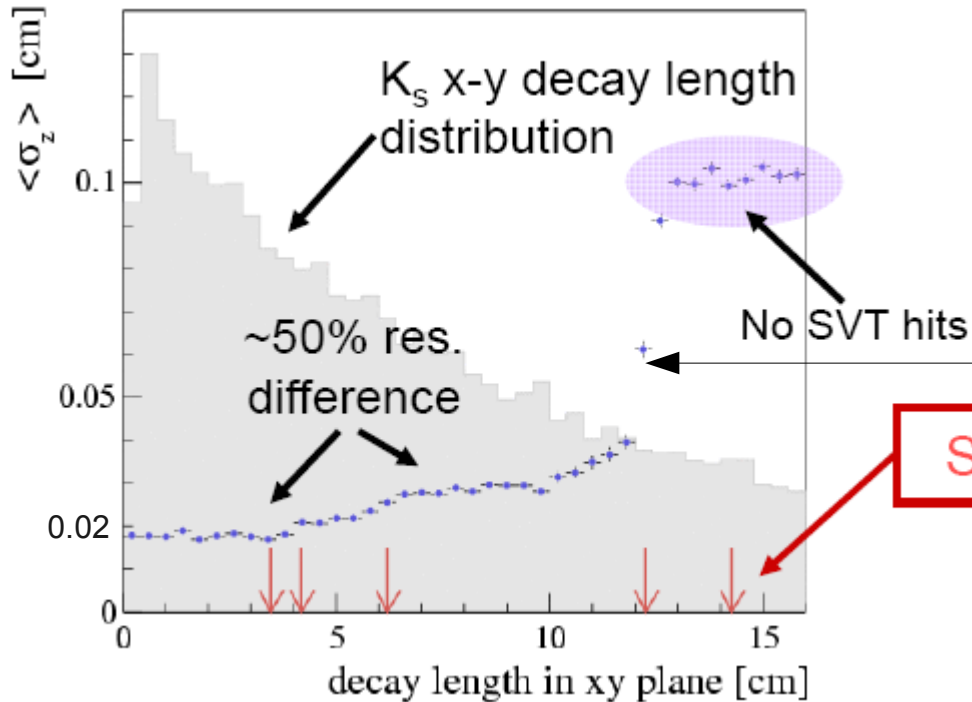# $B \to K_S \pi^0 (\gamma)$ & SVT outer radius : a brief study

Gabriele Simi
(University of Maryland)

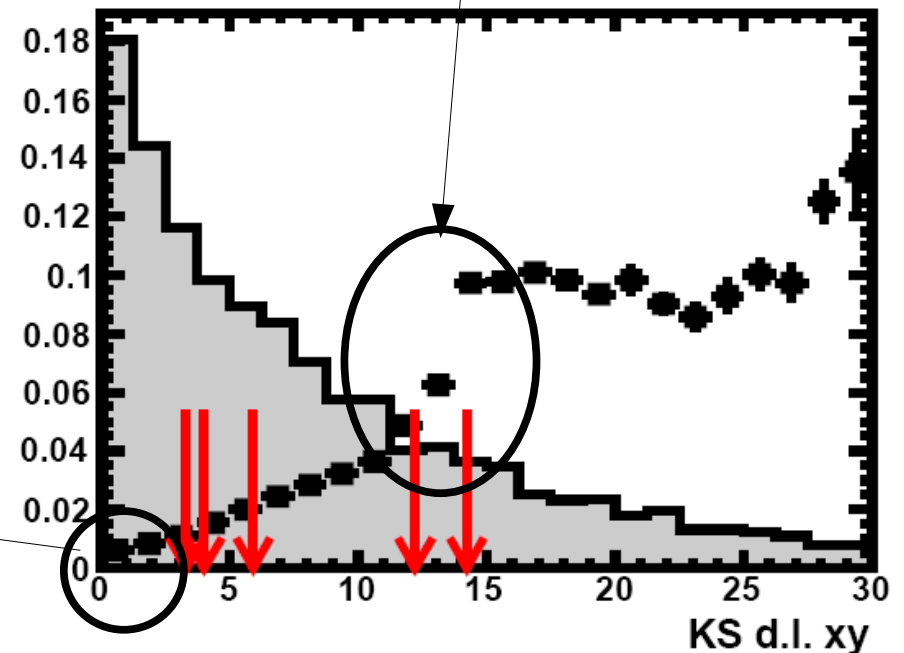# Resoution vs f.t. In BaBar

K$_s$ x-y decay length distribution

No SVT hits

~50% res. difference

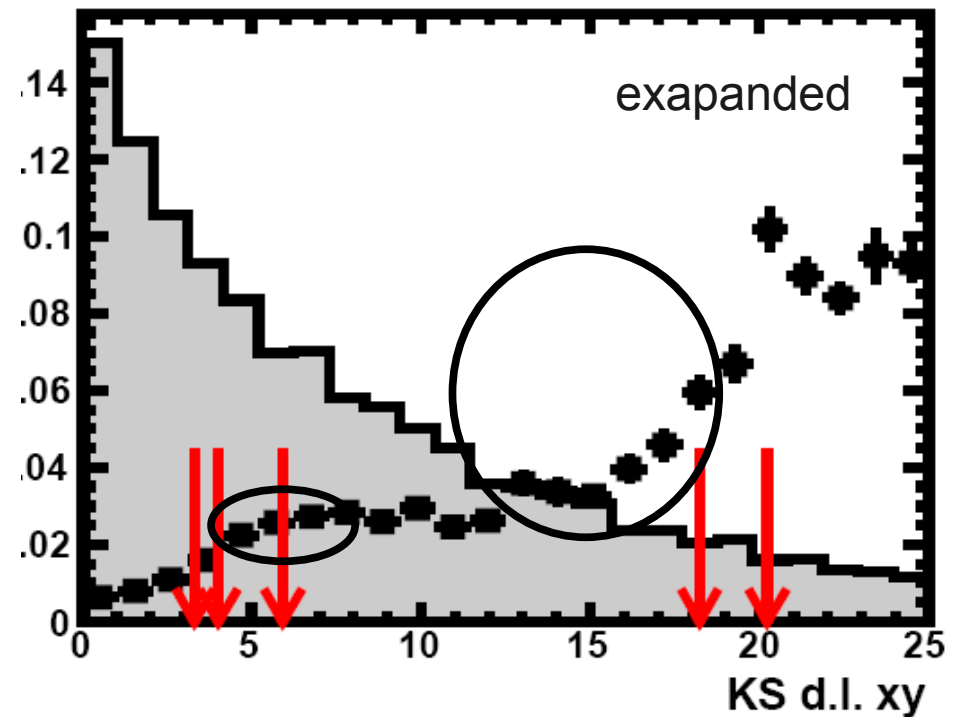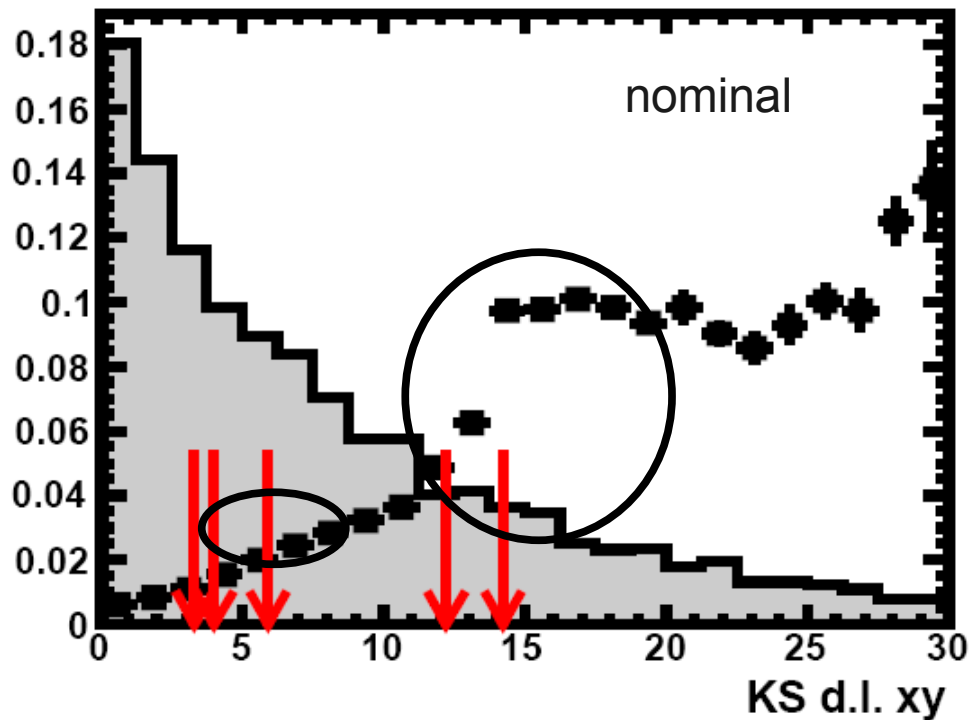Resolution depends on number of SVT layers traversed by pions from K$_s$ …

SVT layers

Pattern Recognition: Tracks with only one SVT hit where not found in BaBar

• Better resolution close to the IP because of layer0

KS d.l. xy

Filling the gap between SVT and DCH

- Expand L4 and L5 up to maximum allowed:
  - Layer 4: 12.2->17.4
  - Layer 5: 14.2->20.2 (DCH S.T. is at 21.3cm)

Error on Δt

Same as in BaBar

Nominal   expanded

- Class I & II: used for dt fit   63%   73%
- Class I & IV   37%   27%

Class II events
have bigger error

nominal

$\sigma(\Delta\ t)[ps]$

expanded

$\sigma(\Delta\ t)[ps]$
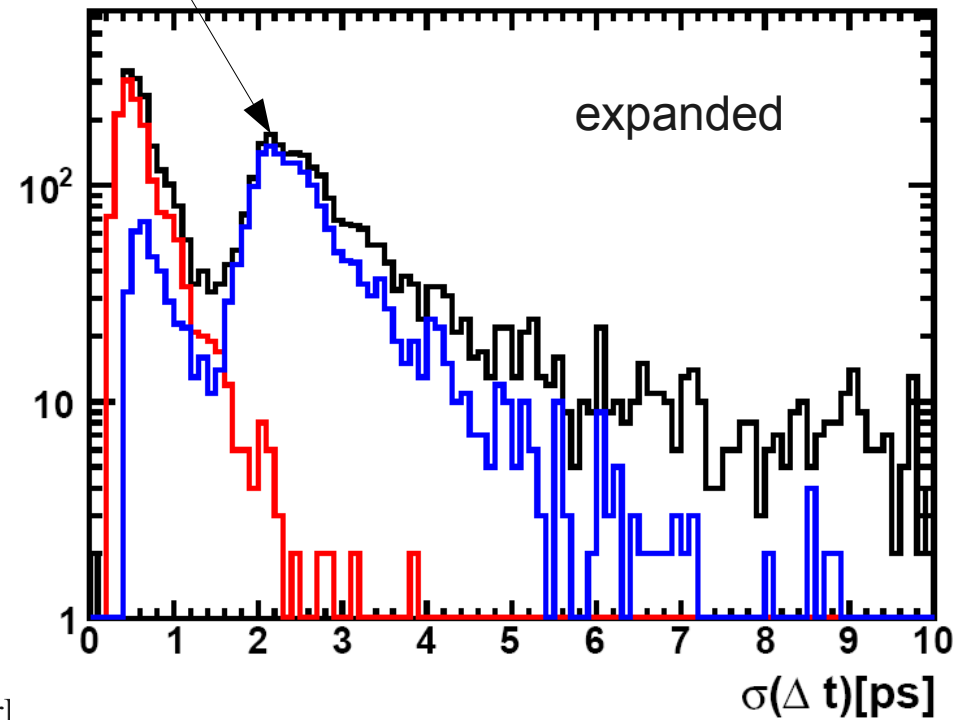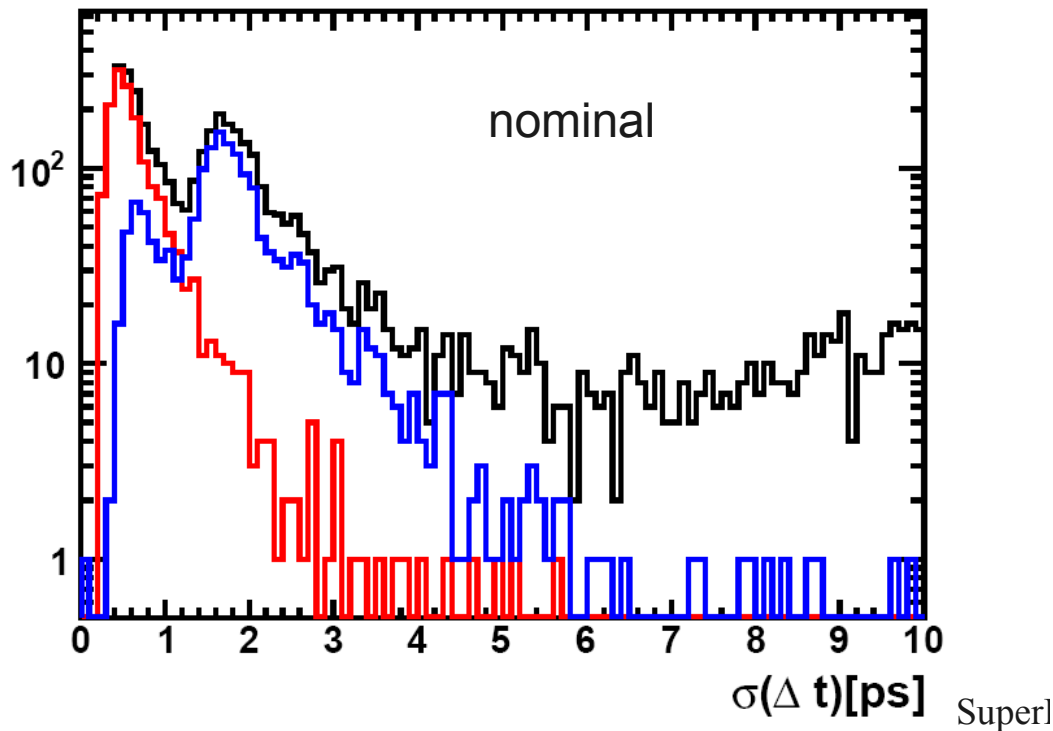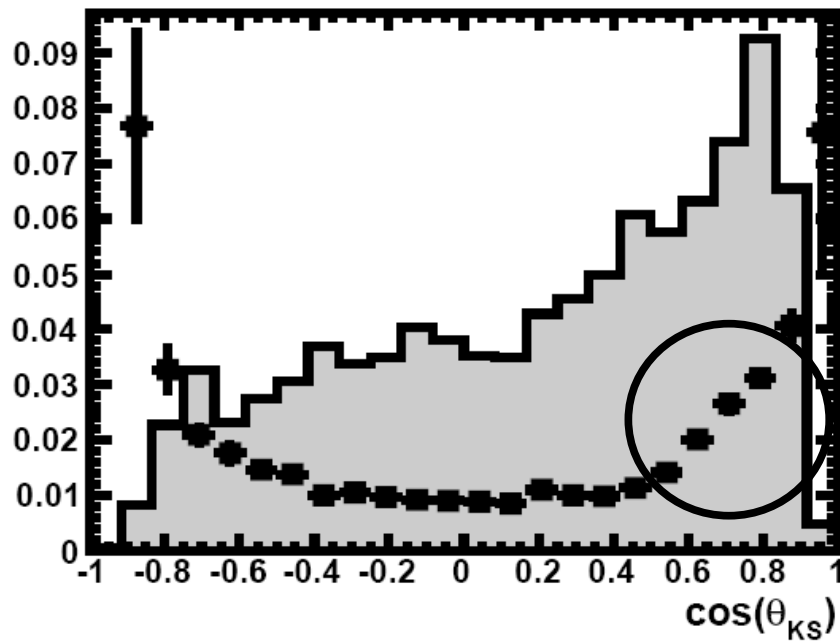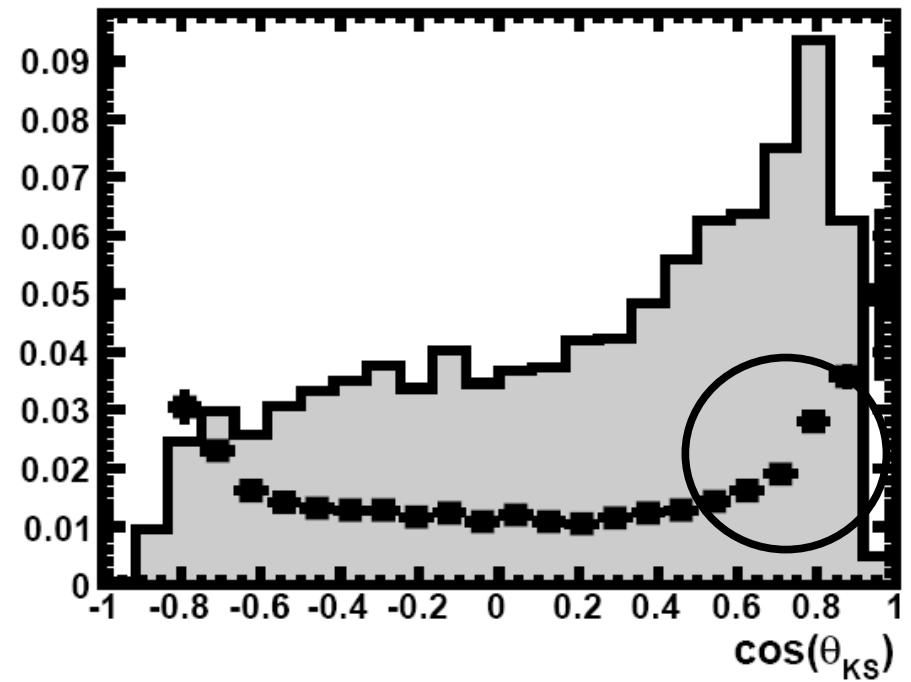
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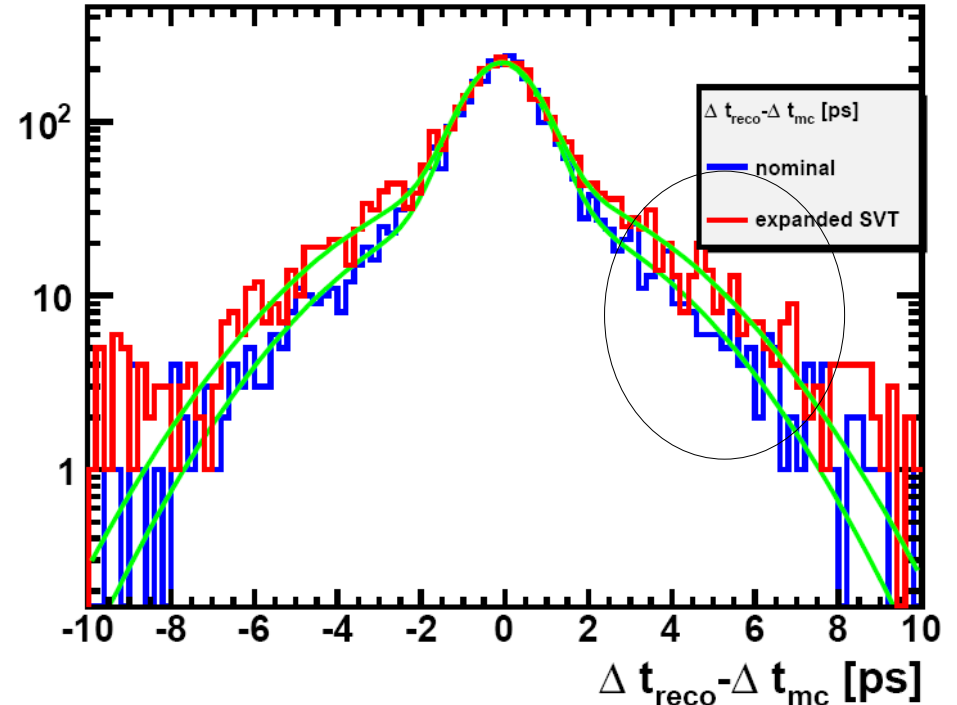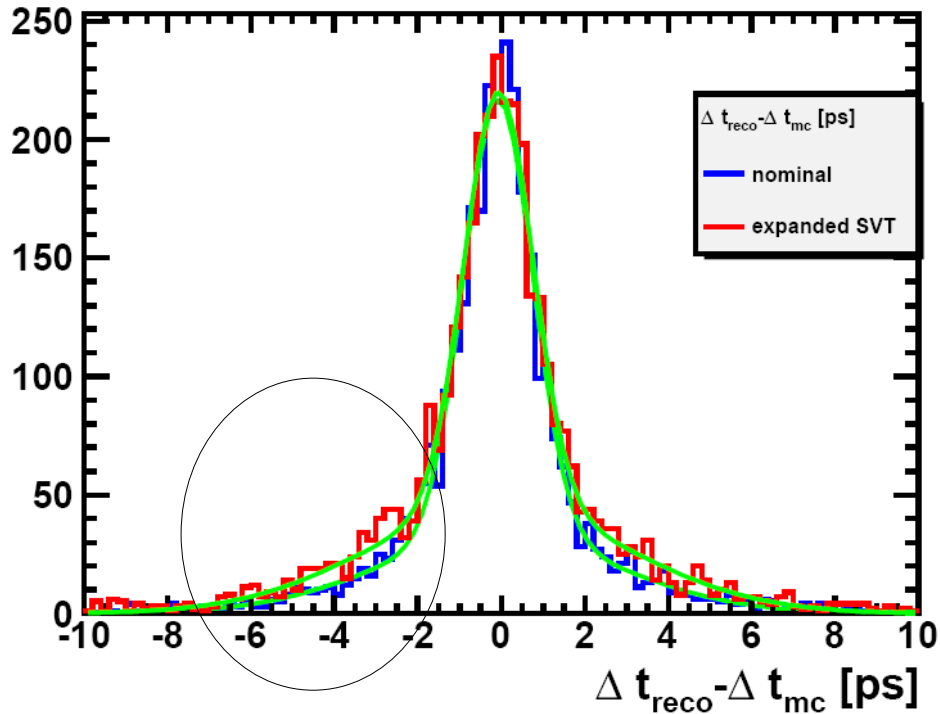
Δt resolution

- most of the additional events are populating mainly the tails of the resolution

Angular dependence

improvement in the
forward region

Conclusions/Plans

- Brief study of impact of SVT outer radius on benchmark channel

- Fraction of usable KS for time dependent study increases

- But additional events have worse resolution than average

- Acceptance in the forward region slightly improves

- More studies to be done