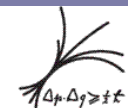


Optimization Studies

Two Goals for the B2GM (Nov 2009)

- Demonstrate prototype benchmark analysis golden mode, full chain (gen→ simulation→ reconstruction→ benchmark analysis) verified against Belle-I analysis Framework (BASF)
- Discuss selection of studies to be performed for the TDR (to be completed by the next DEPFET collaboration meeting Jan '10)

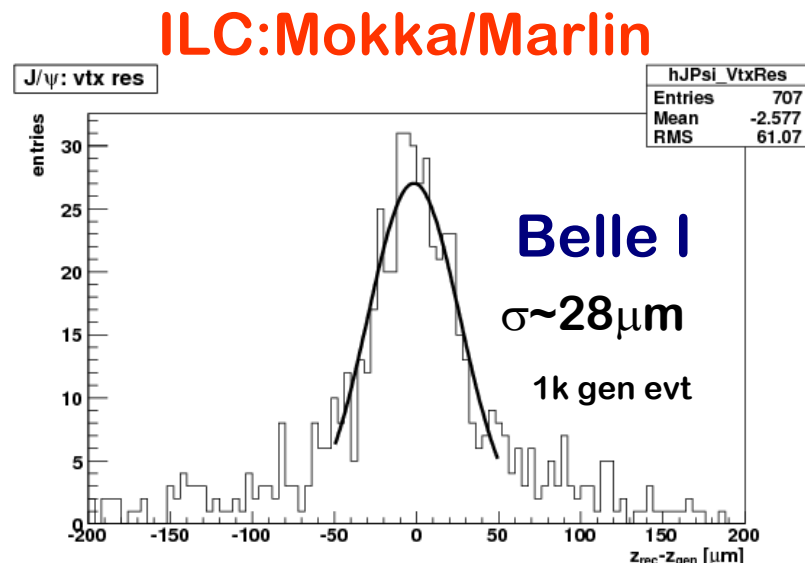
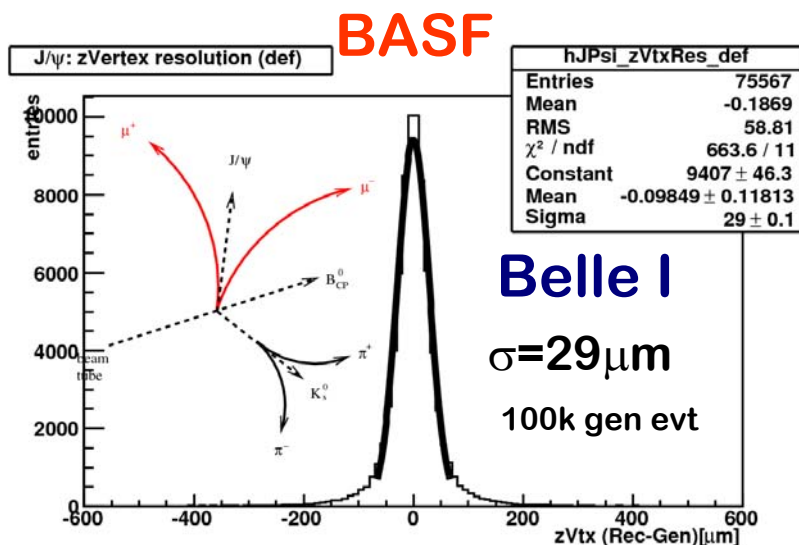


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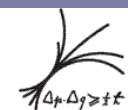
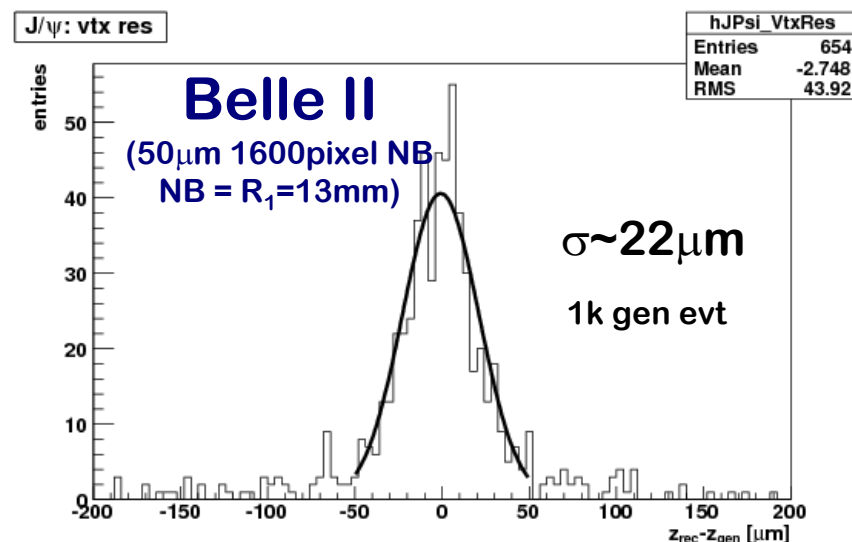
Burkard
Reisert

B2GM
Nov. 2009

Goal I: Demonstrate Prototype Benchmark Analysis



Golden Mode: $(J/\Psi K_s)_{cp} (D^* \pi)_{tag}$
 Detailed comparison of
 Belle-I (BASF), Belle-I(ILC)
 and Belle-II (ILC)
 Resolution of B z-vertices
 J/Psi, back propagated D0
 Δz resolution



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Nov. 2009

Figure of Merits & Studies

Detector performance characterization

- Vertex resolution
high-mom, low-mult: J/ψ **B2GM**
low-mom, high-mult: $D^0 \rightarrow K\pi\pi\pi$ **B2GM (?)**
- Pattern recognition eff. vs. purity (depends on noise & background)
tagging with $D^{*\pm}$, quantify D^* mass difference plots **B2GM ?**

Physics channels of interest

- Golden mode: J/ψ Ks + tagging vertex **B2GM**
- Rare decays: $B \rightarrow hh$ (h-charmless) [$B \rightarrow hhh..?$]
 $B \rightarrow \mu\mu h$
- CPV in VV states: $B \rightarrow D^* D^*$ **B2GM ?**

B2GM
 D^* reco

Impact studies:

- Changed crossing angle and beam energies
- Technical limitations: R inner most layer, sensor thickness, cut sensors

