status of analysis $\bar{p}\,p \rightarrow Y(4260) \rightarrow J/\psi\,\pi^0\pi^0 \rightarrow e^-\,e^+\,4\,\gamma$

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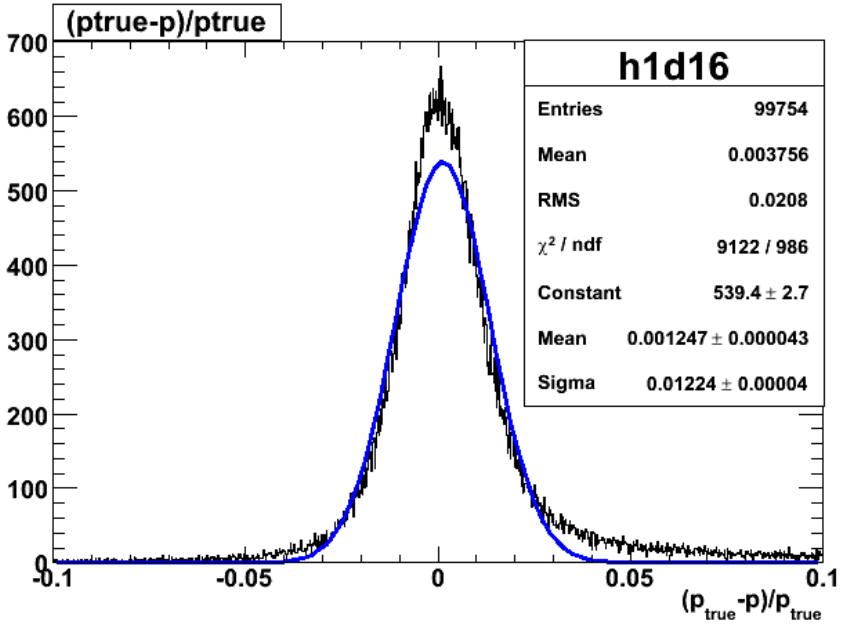
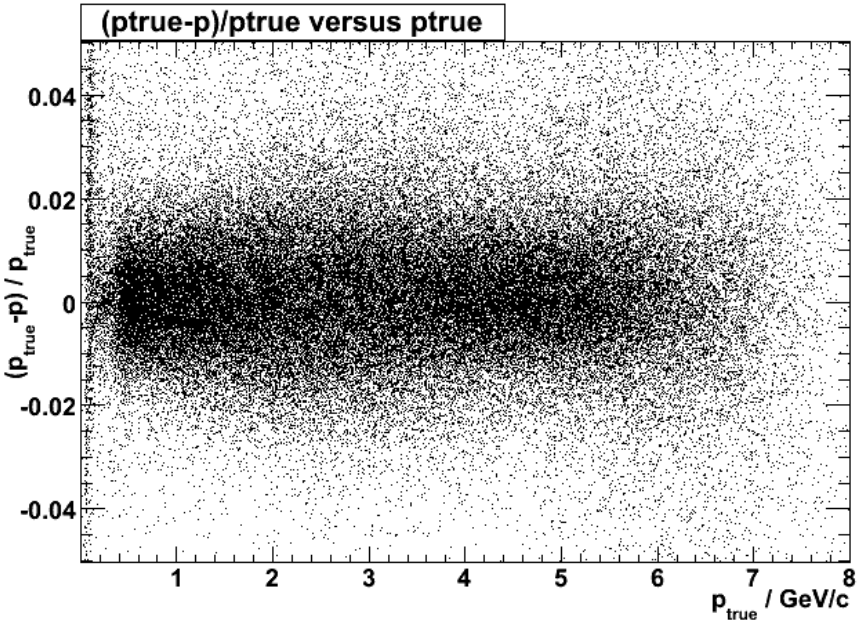
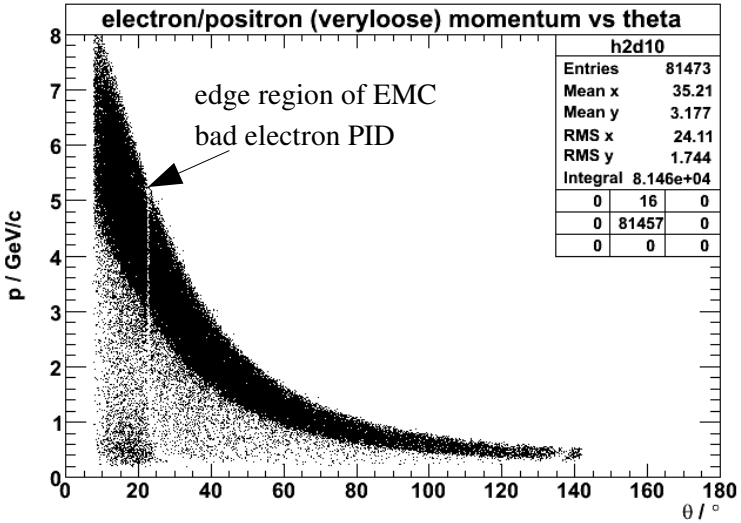
VRVS meeting 18.06.2007

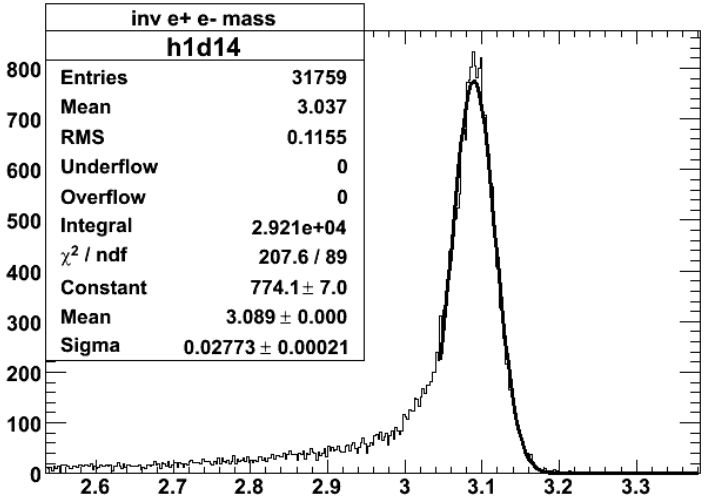
momentum resolution for reconstructed charged tracks (50K Y(4260)->J/Psi pi0 pi0-events)



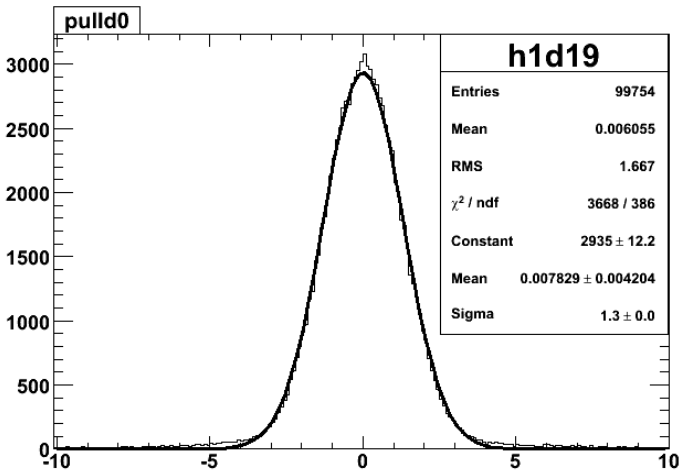


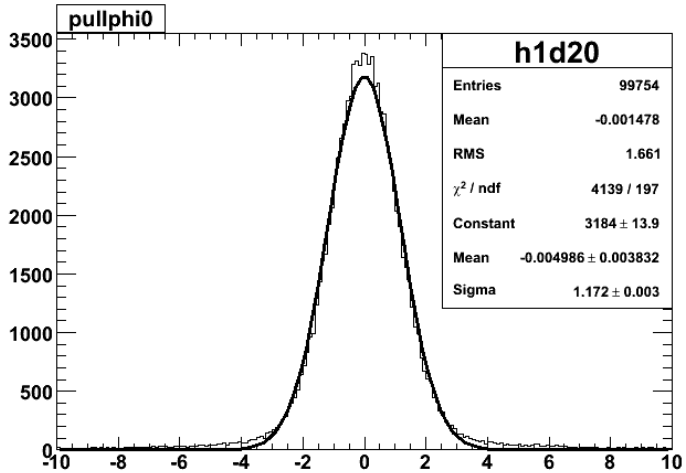
- release 0.10.6
- trackreco with Mvd,Stt,Dch
- ElectronCombinedLHVeryLoose is used
- at the moment all tracks are fitted with <u>pion!</u> hypothesis

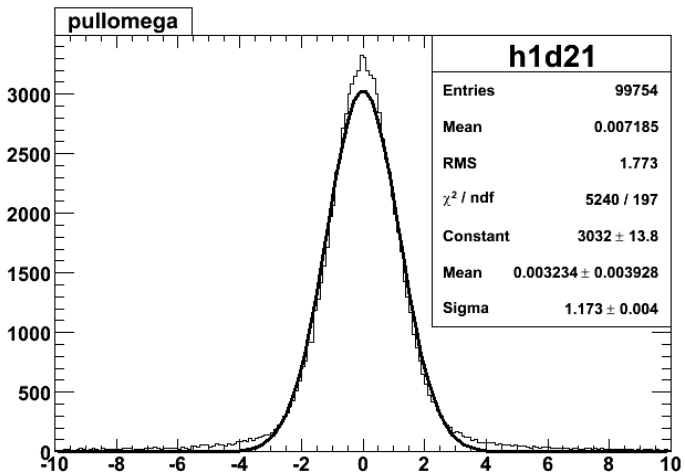


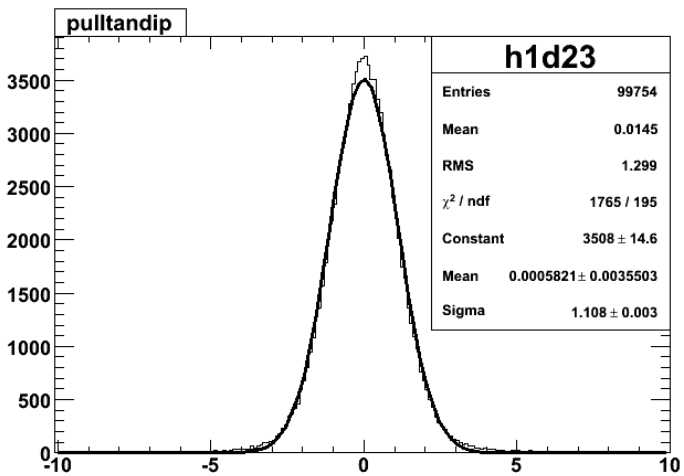


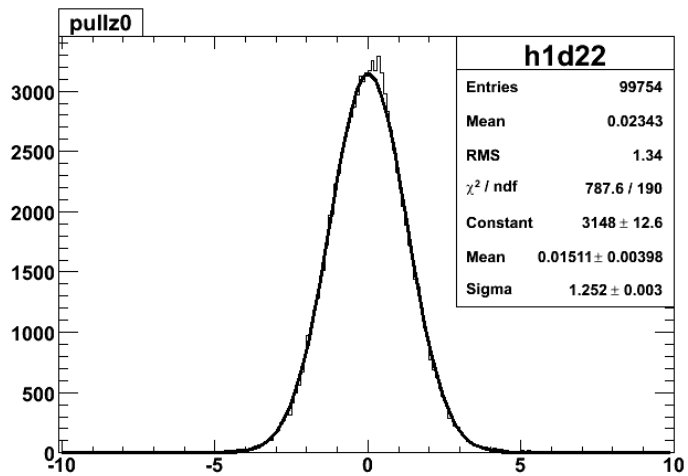
pull distributions for track parameter

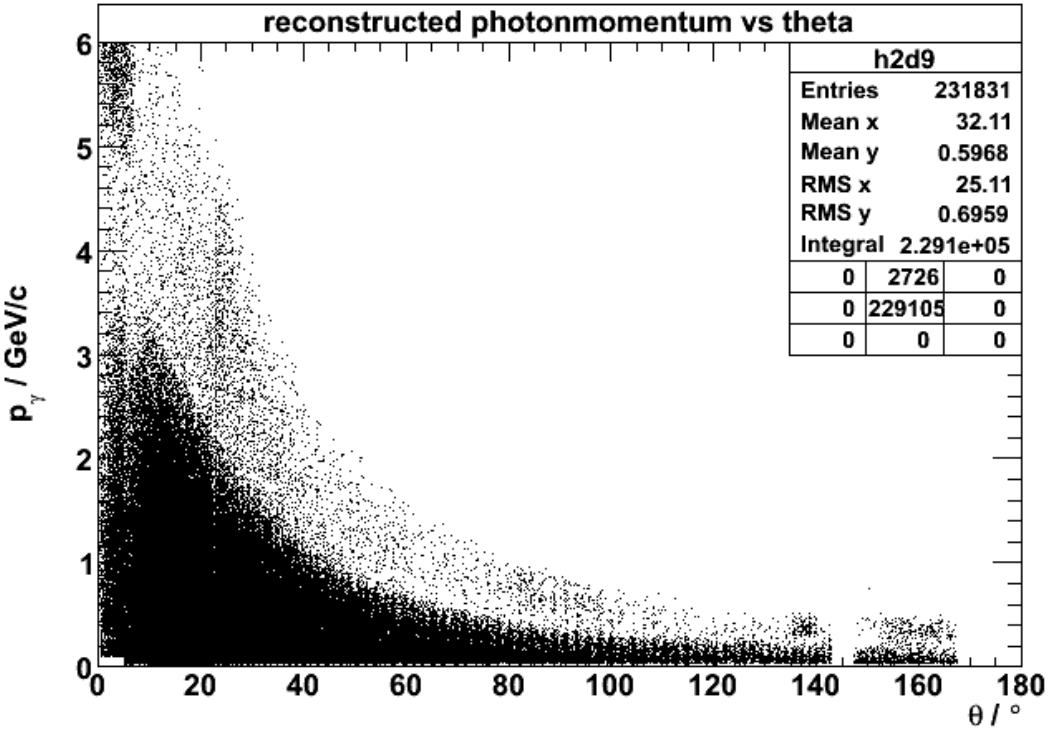


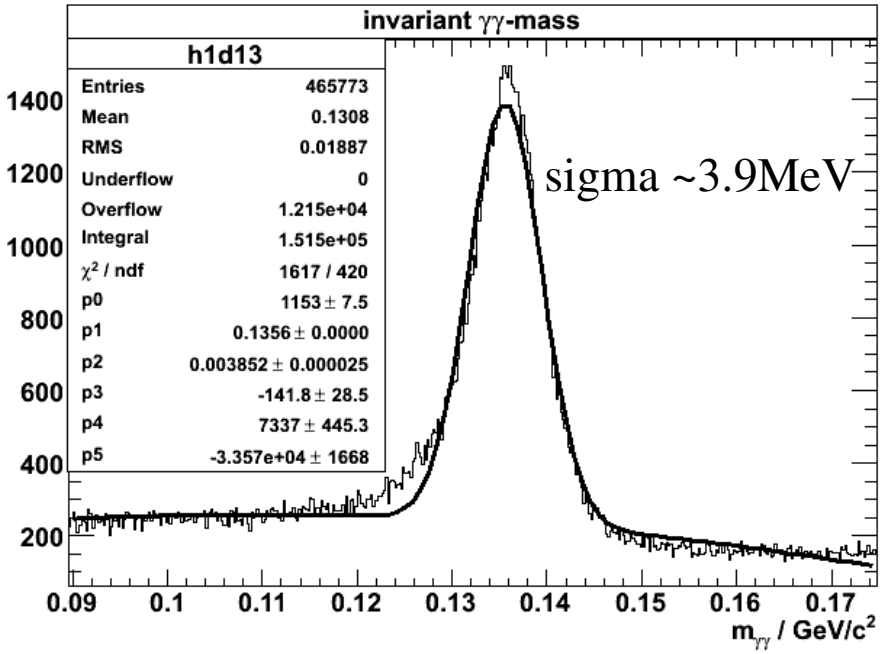






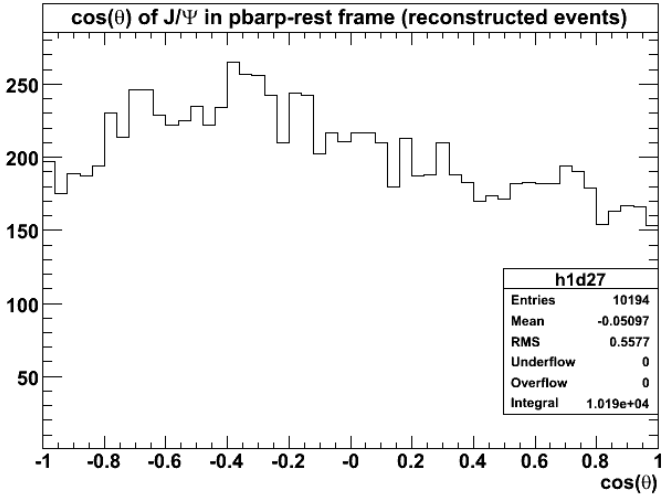


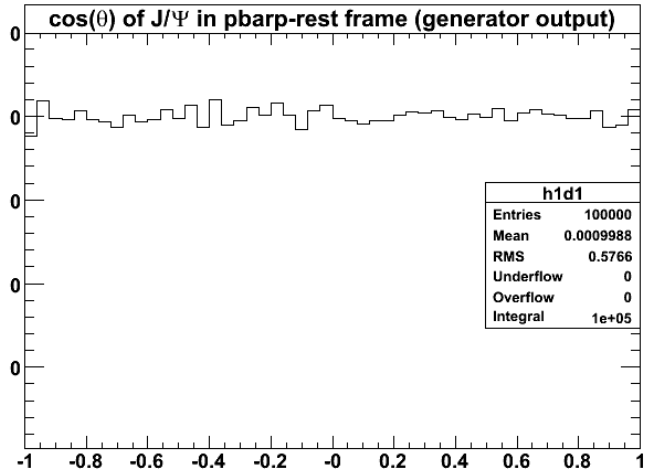

reconstructed photonmomentum vs theta
h2d9
Entries 231831
Mean x 32.11
Mean y 0.5968
RMS x 25.11
RMS y 0.6959
Integral 2.291e+05
0 2726 0
0 229105 0
0 0 0
p_γ / GeV/c
θ / °

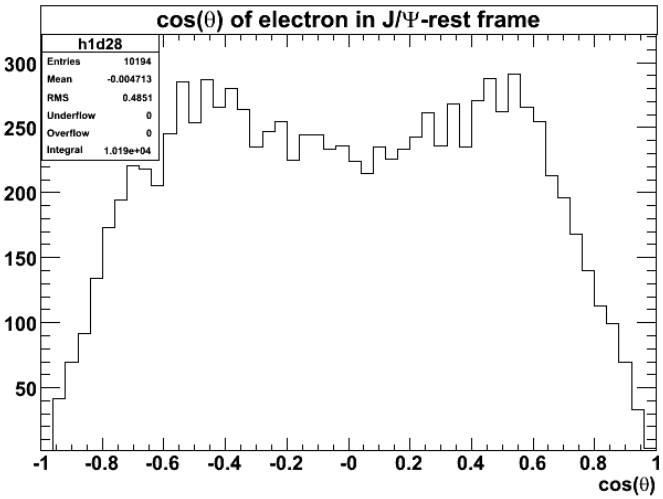

invariant γγ-mass
h1d13
Entries 465773
Mean 0.1308
RMS 0.01887
Underflow 0
Overflow 1.215e+04
Integral 1.515e+05
χ² / ndf 1617 / 420
p0 1153 ± 7.5
p1 0.1356 ± 0.0000
p2 0.003852 ± 0.000025
p3 -141.8 ± 28.5
p4 7337 ± 445.3
p5 -3.357e+04 ± 1668
sigma ~3.9MeV
m_γγ / GeV/c²

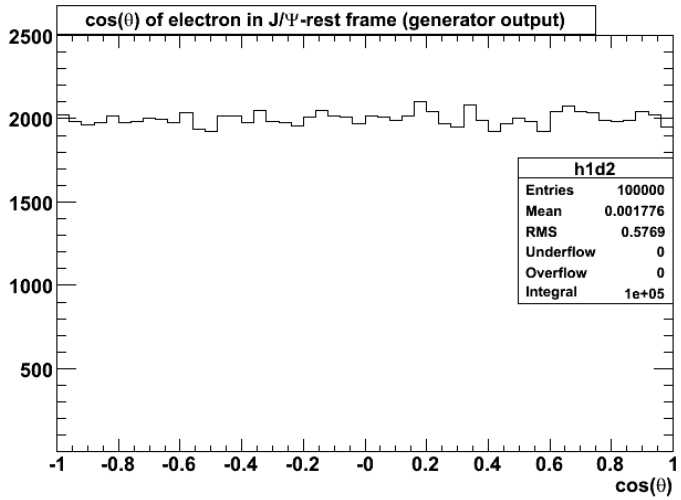
applied cuts:

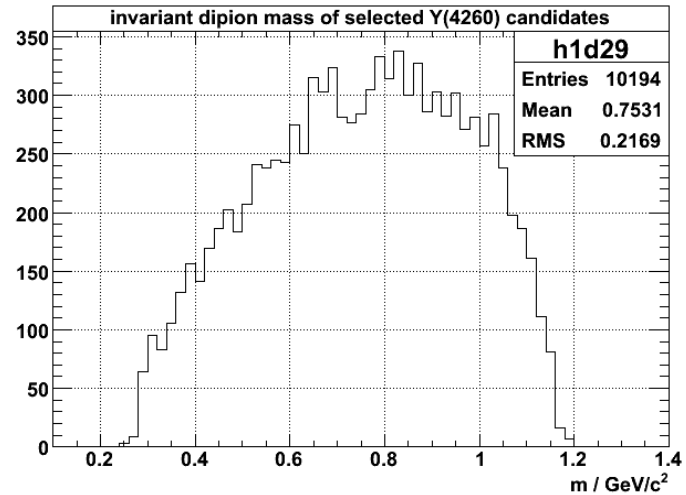
- exactly 2 reconstructed charged tracks
- 3.0 GeV/c^2 < J/ψ-mass < 3.15 GeV/c^2
- J/ψ vertexing confidential level > 0.01
- 0.11 GeV/c^2 <π°-mass < 0.15 GeV/c^2
- angle between dipion and J/ψ in CM of $\bar{p}p$ > 177°
- 4.16 GeV/c^2 < reconstructed Y(4260)-mass < 4.36 GeV/c^2
- -0.2 GeV/c < px of Y(4260) < 0.2 GeV/c
- -0.2 GeV/c < py of Y(4260) < 0.2 GeV/c
- -8.48 GeV/c < pz of Y(4260) < 8.88 GeV/c
- choose best(nearest to 4.26 GeV/c^2 mass) Y(4260) candidate if there are more than one candidates in one event

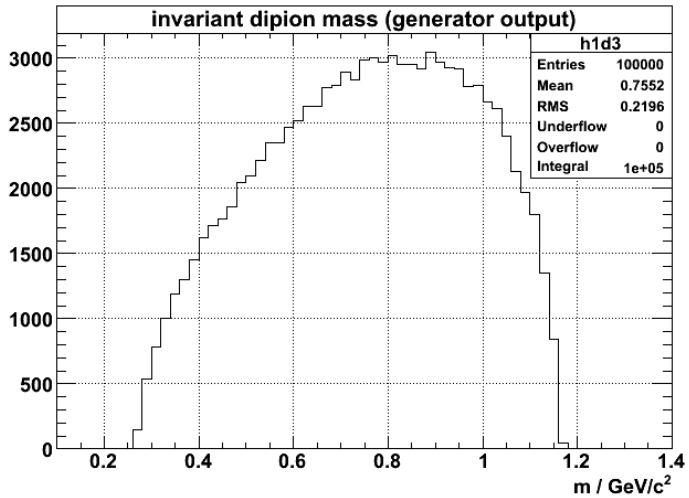






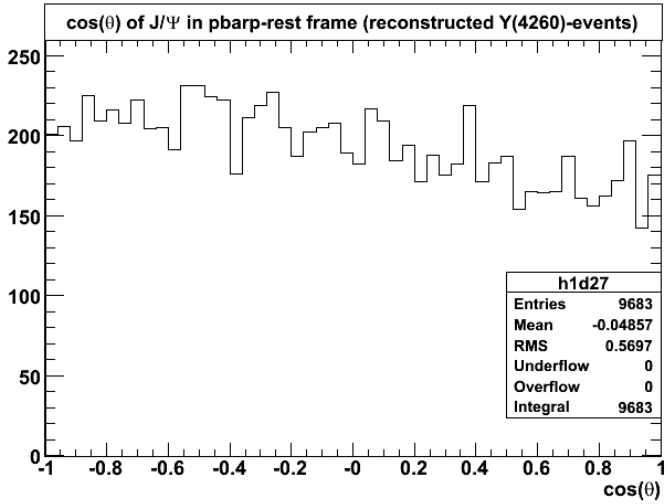


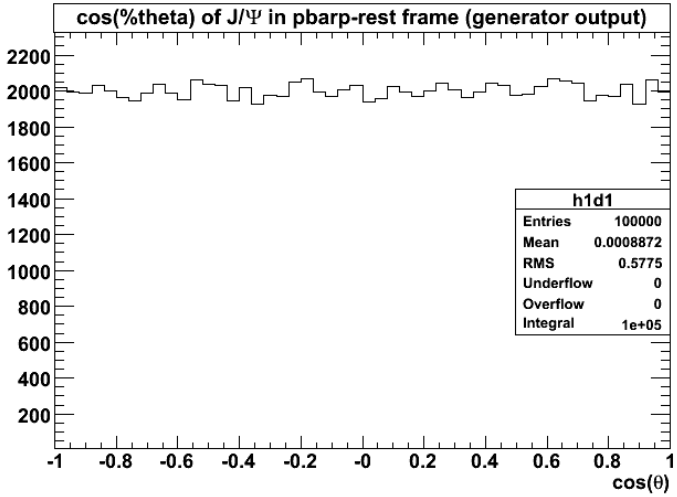




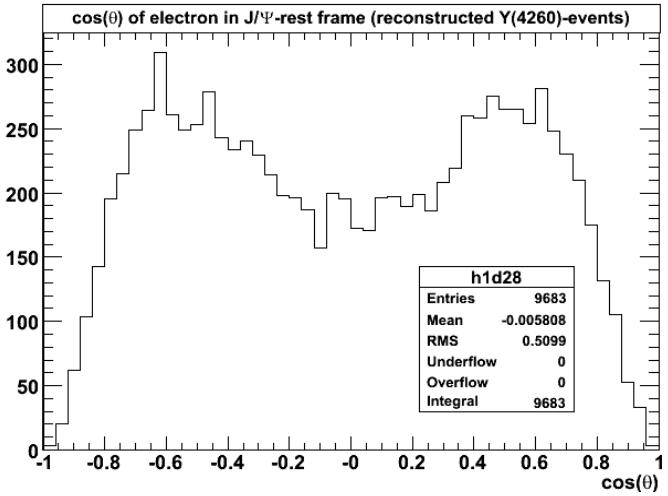
left histograms:
50K simulated events
pbarp->Y(4260)->J/Psi pi0 pi0
phasespace distributed events
->selection efficiency ~20%

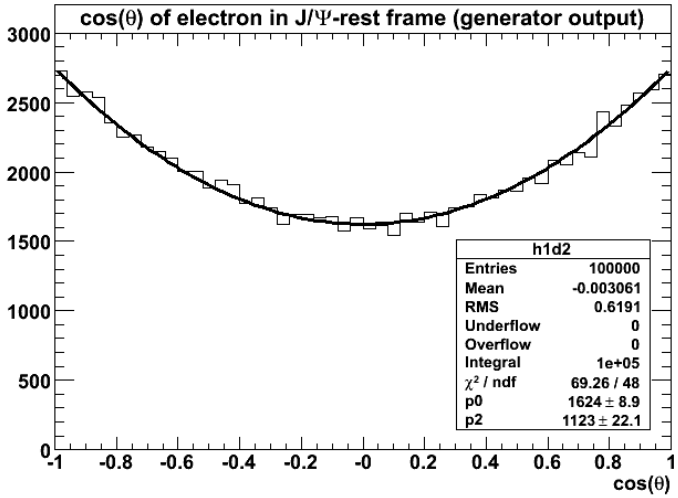
rigth histograms:
just for comparison distribution of
0K phasespace distributed events
rectly from event generator output





left histograms:
50K simulated events
pbarp->Y(4260)->J/Psi pi0 pi0
e- and beamdir: 1 + 0.7 * cos^2(theta)
Ψ(2S)-like dipion mass distribution
->selection efficiency ~19%





right histograms:
just for comparison distribution of
100K events directly from event
generator output