ππJ/psi and KK J/psi @4600

Sun Zhentian

Selection Criteria for 4600→ππJ/psi

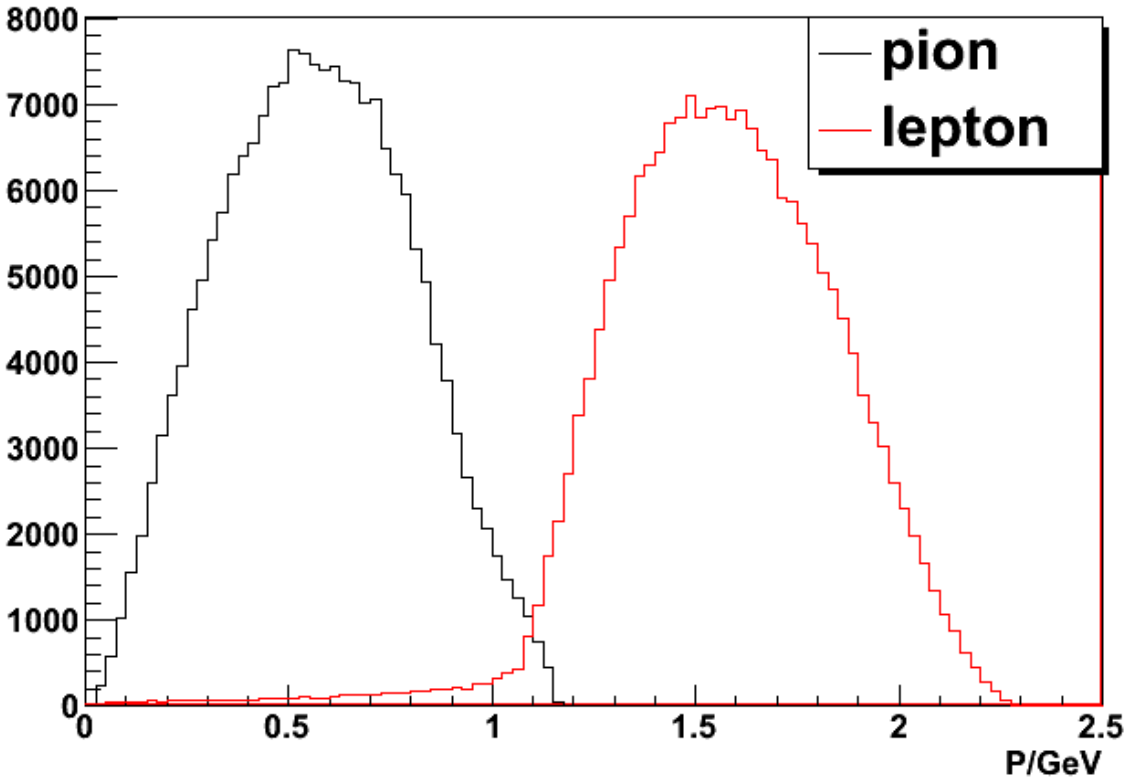
- Good Charged Track: *V_r<1cm,|V_z|<10cm, |cosϑ|<=0.93* N_{good}=4, Q=0
- Good Photons: *No requirement on Ngamma*
  E_γ>=25MeV,For Barrel. E_γ>=50MeV,For Endcap. $angle_{\gamma\text{-}ch}$>=5^0
  0<=TDC time<=14
- If p(charged track)>1.1GeV, then the track is assumed to be lepton
  EMC energy used to identify e^+/e^- and μ^+/μ^-
  for e^+/e^- : E/p>0.7GeV
  for μ^+/μ^- : E/p<0.3GeV
- At least one muon have hit number of layers >5 in MUC
- N(l+)=N(l-)=1,
- If P(charged track)<1.1 GeV, the charged track is assumed to be pion,
  N(π+)=N(π-)=1
- 4C kinematic fit to select 4 photons:
  $\chi_{4c}^2(\pi\pi ll)$<50

Selection Criteria

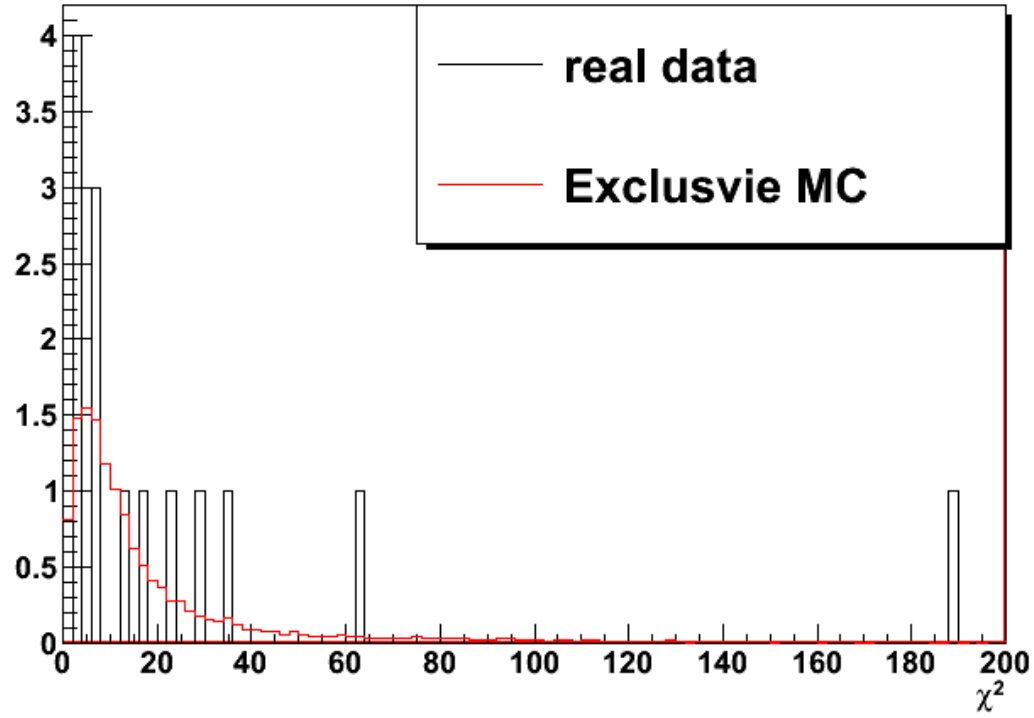
- $|\mathrm{Cos}\theta(\pi^+\pi^-)|<0.98$
- For ee mode: $|\mathrm{Cos}\theta(\pi^+l^-)|<0.98$ or $|\mathrm{Cos}\theta(\pi^-l^+)|<0.98$
- J/Ψ mass window cut:

  $|m(l^+l^-)-m(J/\psi)|<18MeV$

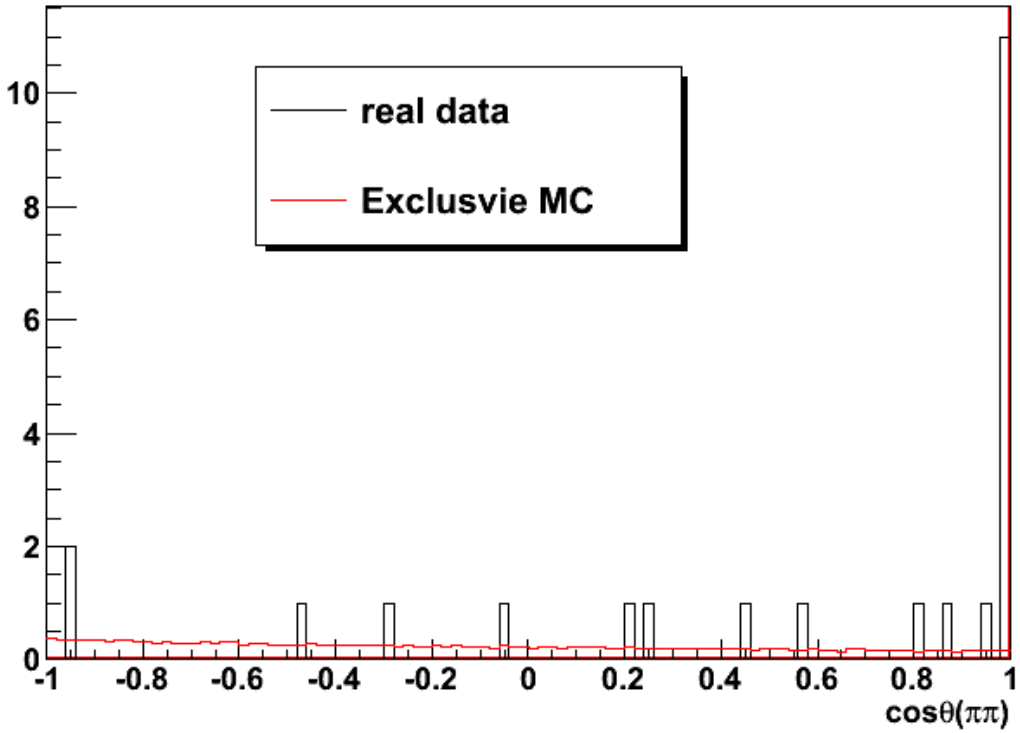
The momentum of lepton and pion



Comparison of χ^2(4c) between data and MC

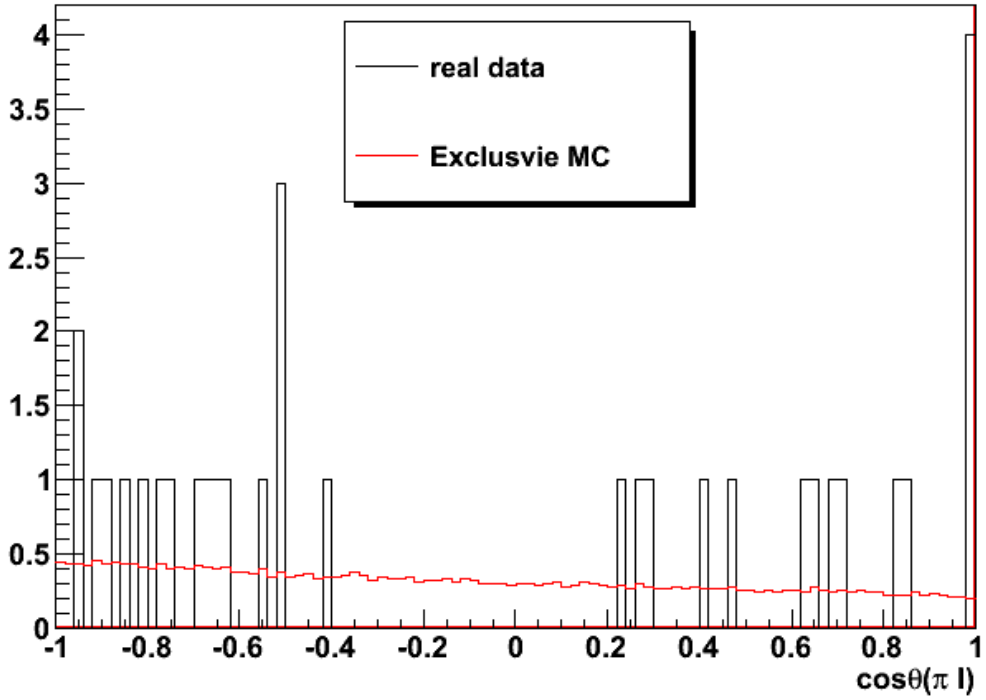


The angle between π+ and π-



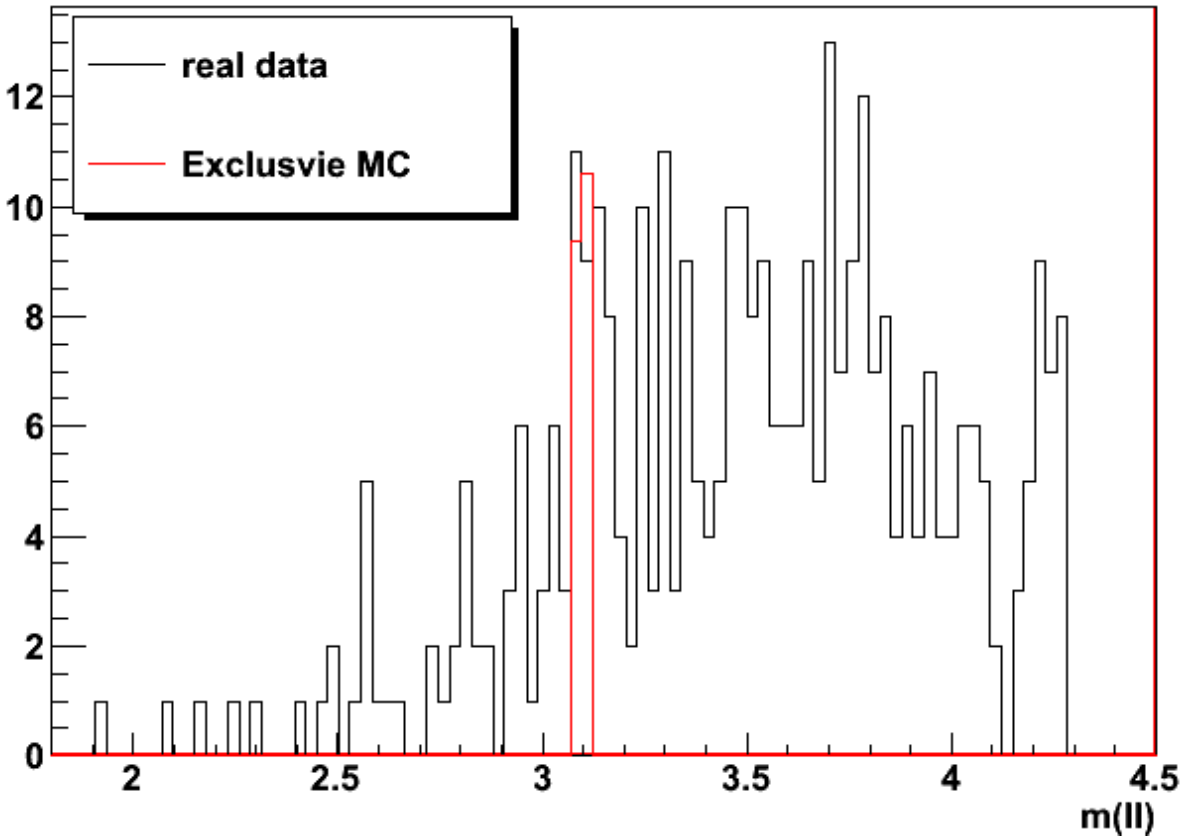
|Cosθ(π+π-)|<0.98 to veto background from gamma conversion

The angle between π+ and l- or π- and l+



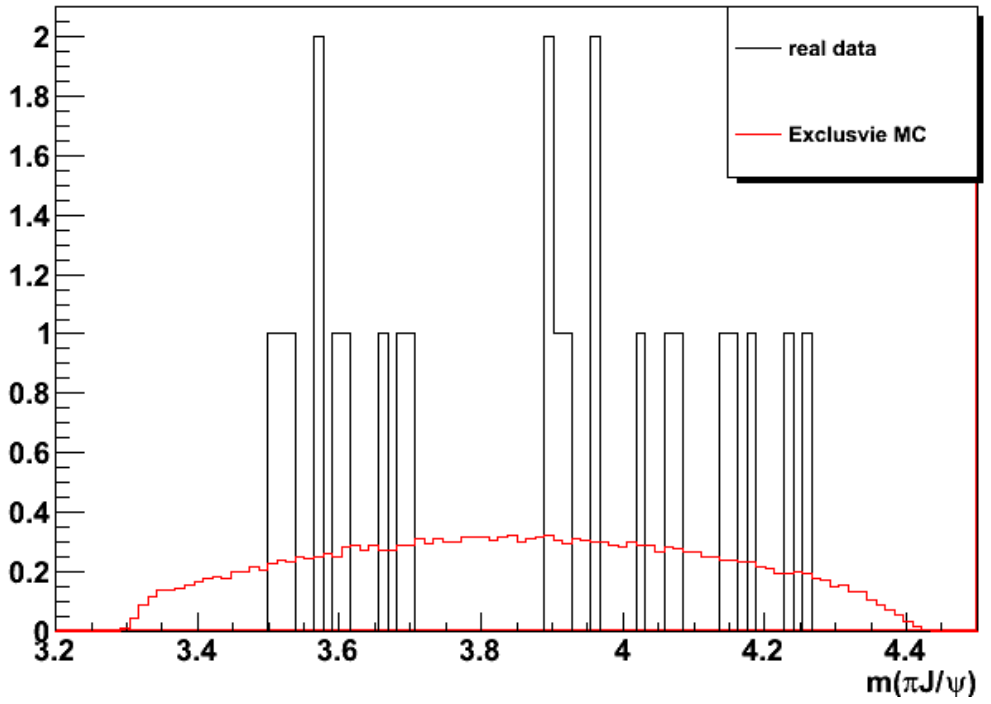
|Cosθ(π+l-)|<0.98 or |Cosθ(π-l+)|<0.98 to veto background from gamma conversion

The m(l+l-) for real data and MC



The resolution for MC is very small. $|m(l^+l^-)-m(J/\psi)|<18MeV$

The m(πJ/psi) for real data and MC

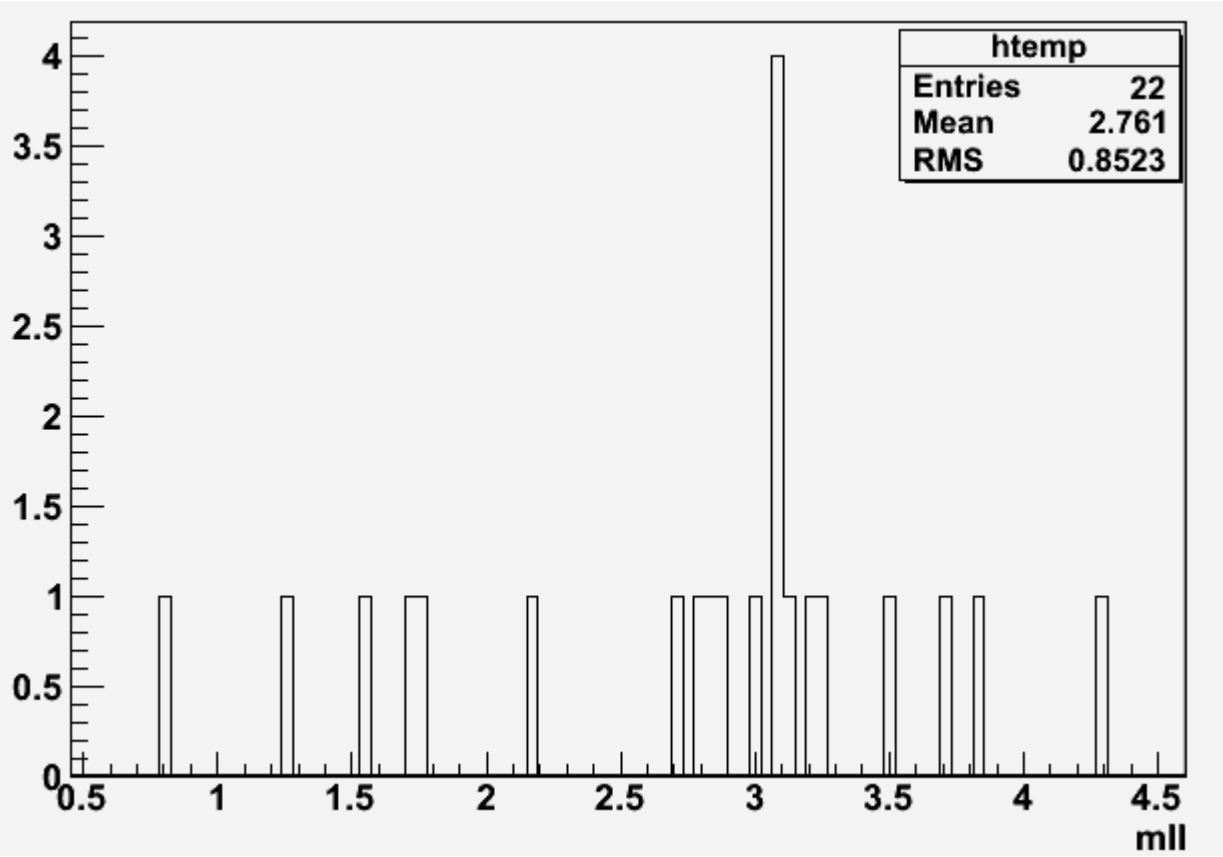


Cut flow for 4600→π+π-J/psi

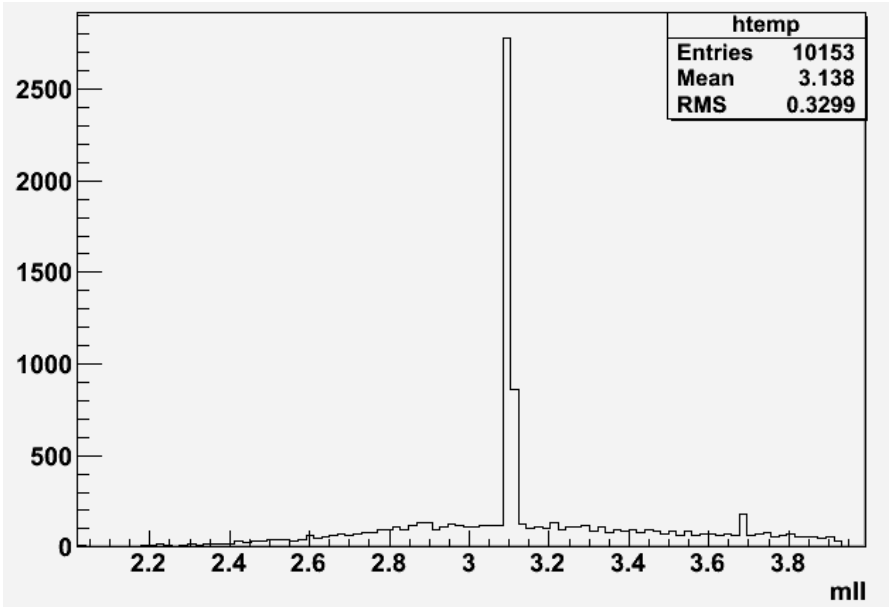
step	ee mode	mumu mode
Total	100000	100000
Ncharge=4	70879	71429
PID	56957	60450
4C	38662	51683
Cosθ(ππ)	37779	50537
Cosθ(πl)	36232	50537
J/psi mass window	35999	50270

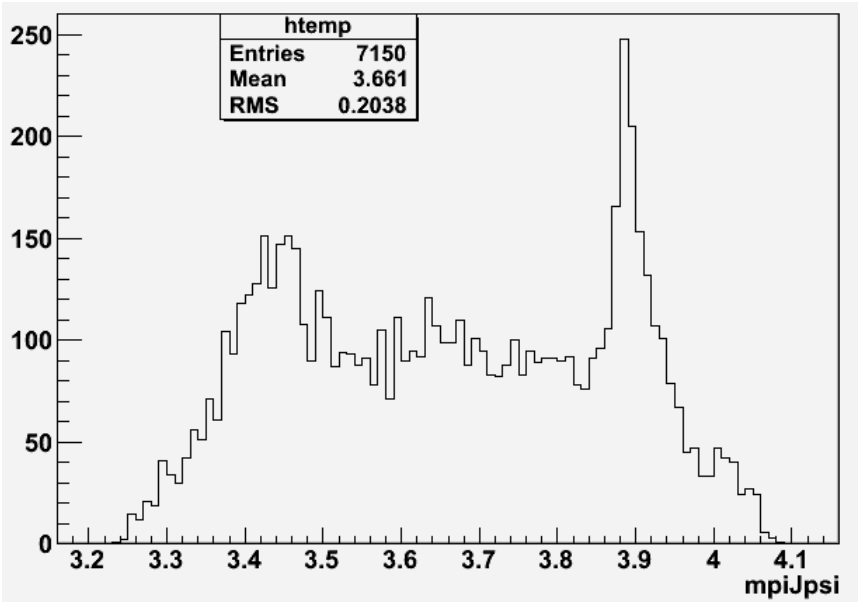
No ISR considered.

$\pi^0\pi^0 J/\psi$ for 4600 data before 140208



$\pi^+\pi^- J/\psi$ for 4230 data





Selection Criteria for KKJpsi

- Good Charged Track: *V_r<1cm,|V_z|<10cm, |cosϑ|<=0.93* N_{good}=4, Q=0
- Good Photons: *No requirement on Ngamma*
  E_γ>=25MeV,For Barrel. E_γ>=50MeV,For Endcap. $angle_{\gamma\text{-}ch}$>=5^0
  0<=TDC time<=14
- If p(charged track)>1.1GeV, then the track is assumed to be lepton
  EMC energy used to identify e^+/e^- and μ^+/μ^-
  for e^+/e^- : E/p>0.7GeV
  for μ^+/μ^- : E/p<0.3GeV
- At least one muon have hit number of layers >5 in MUC
- N(l+)=N(l-)=1,
- If P(charged track)<1.1 GeV, the charged track is assumed to be kaon,
  N(K+)=N(K-)=1
- 4C kinematic fit to select 4 photons:
  χ_{4c}^2(KKll)<50

Selection Criteria for KKJpsi

- |Cosθ(K+K-)|<0.98
- For ee mode: |Cosθ(K+l-)|<0.98 or |Cosθ(K-l+)|<0.98
- J/Ψ mass window cut:

  $|m(l^+l^-)-m(J/\psi)|<18MeV$

The m(l+l-) for real data@4600 for KKJ/spi