CMS Analysis Status: Inclusive $b \rightarrow J/\psi X$, $J/\psi \rightarrow \mu\ \mu$

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Outline

- Data Samples
- Gen& Reco
- Outlook

CMSSW_2_1_12
CMSSW_2_2_7

pp@10TeV

CMS Summer08 M.C. data samples

b2J/psi

1,413,547

- **/BtoJpsiMuMu/Summer08_IDEAL_V9_PAT_v1/USER** — **CMSSW_2_2_1**
  Created 22 Jan 2009, 4817138 events, 137 files, 1 block(s), 139.7GB, located at 1 site
- **/BtoJpsiMuMu/Summer08_IDEAL_V11_redigi_v1/GEN-SIM-RECO** — **CMSSW_2_2_1**
  Created 09 Jan 2009, 2453008 events, 1536 files, 16 block(s), 635.7GB, located at 4 sites
- **/BtoJpsiMuMu/Summer08_IDEAL_V9_v2/GEN-SIM-RECO** — **CMSSW_2_1_7**
  Created 14 Nov 2008, 2434076 events, 381 files, 5 block(s), 643.2GB, located at 5 site

Sum08 Incl b: ~100 pb-1

p-J/psi

1,702,394

- **/JPsi/Summer08_IDEAL_V11_redigi_v1/GEN-SIM-RECO** — **CMSSW_2_2_1**
  Created 18 Feb 2009, 1941162 events, 382 files, 2 block(s), 394.1GB, located at 1 site
- **/JPsi/Summer08_IDEAL_V9_v1/GEN-SIM-RECO** — **CMSSW_2_1_7**
  Created 11 Dec 2008 , 1847135 events, 365 files, 12 block(s), 385.5GB, located at 3 sites

Sum08 pJpsi: ~16 pb-1

QCD

2,024,407

- **InclusivePPmuX/Summer08_IDEAL_V9_PAT_v1/USER** — **CMSSW_2_2_1**
  Created 22 Jan 2009, 10345428 events, 312 files, 1 block(s), 304.5GB, located at 3 sites
- **/InclusivePPmuX/Summer08_IDEAL_V11_redigi_v1/GEN-SIM-RAW** — **CMSSW_2_2_1**
  Created 18 Dec 2008, 5309035 events, 1702 files, 18 block(s), 1.5TB, located at 9 sites
- **/InclusivePPmuX/Summer08_IDEAL_V9_v4/GEN-SIM-RECO** — **CMSSW_2_1_8**
  Created 17 Nov 2008, 5232662 events, 1315 files, 33 block(s), 1.5TB, located at 3 si

Sum08 QCD: ~0.044 pb-1

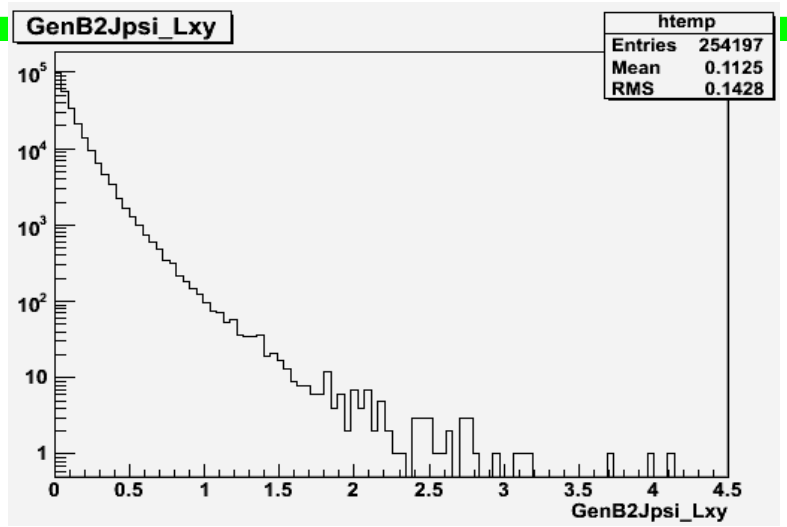
Early Data with 10 pb-1 analysis

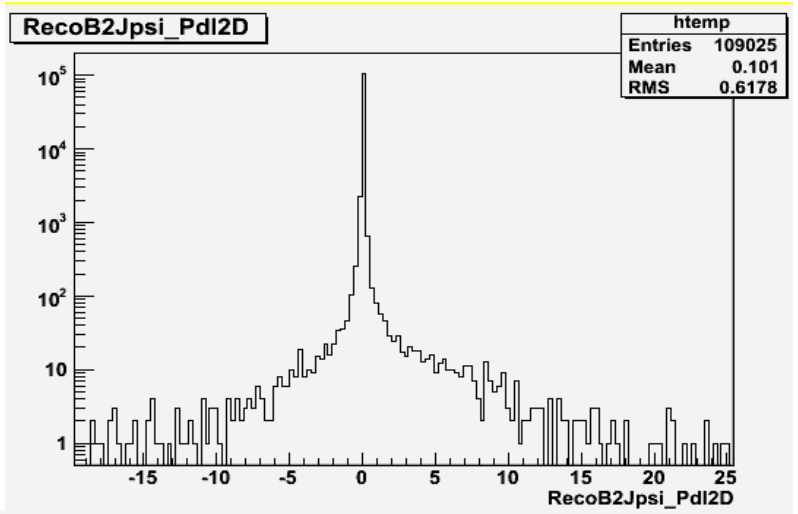
The events normalized or scaled

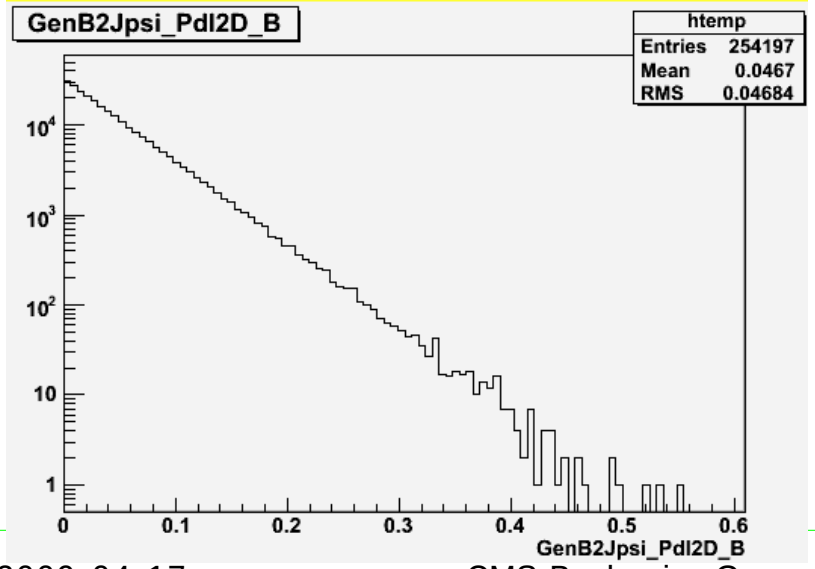
- Inclusive b: 253,600(SW227)
- P-J/Psi: 1,150,000(SW2112)
- Inclusive PPmuX: 2,024,407(SW227)

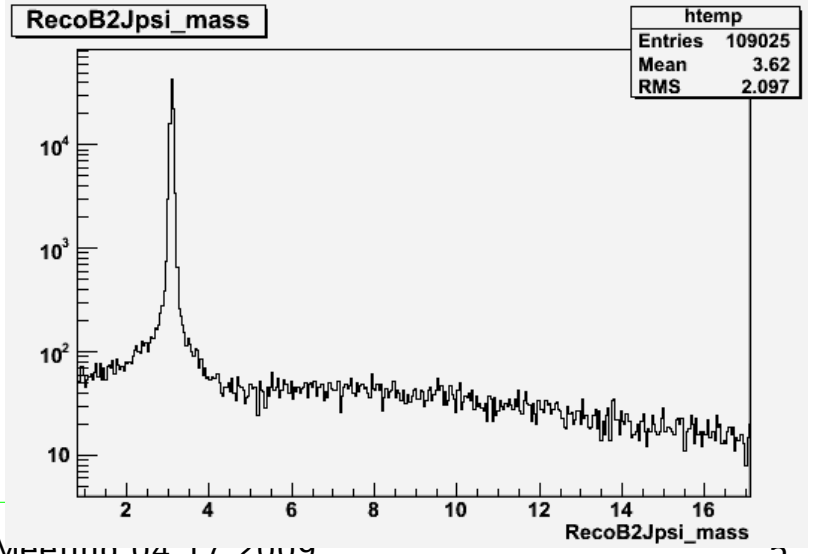
Scale: 587 -> 1,188,000,000

Inclusive b： Gen & Reco

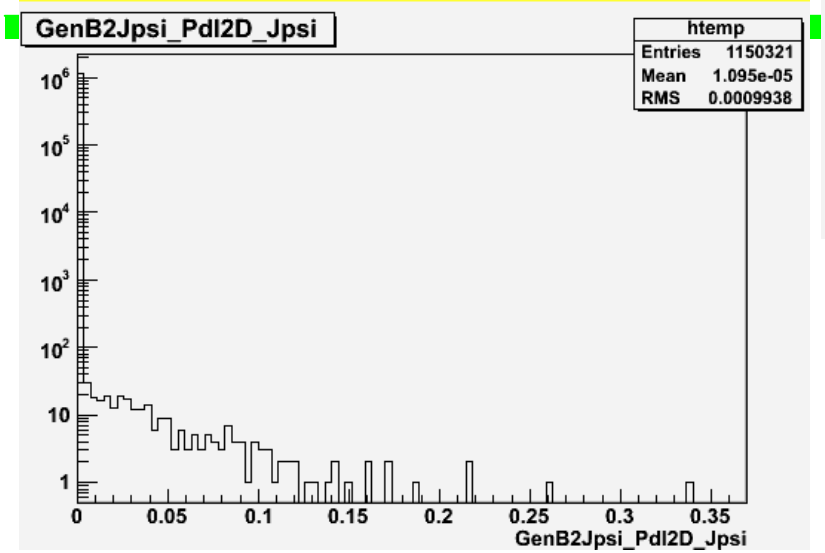


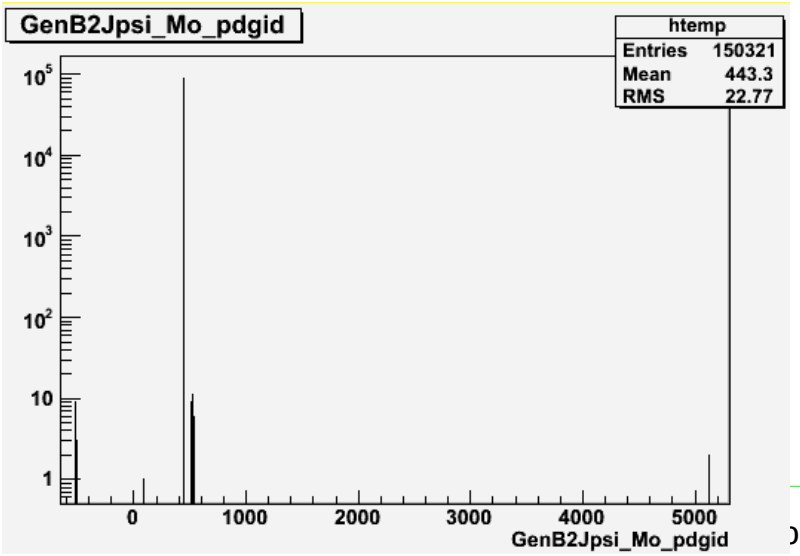


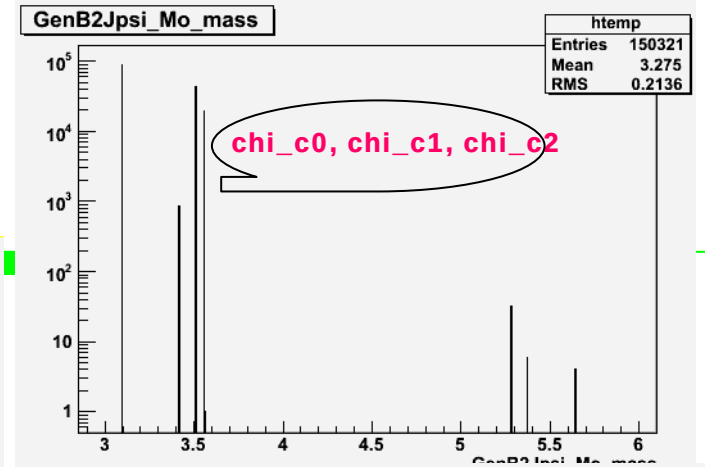


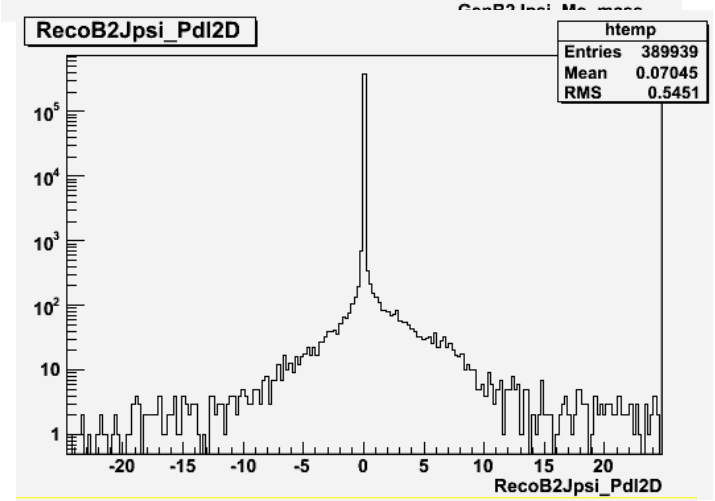


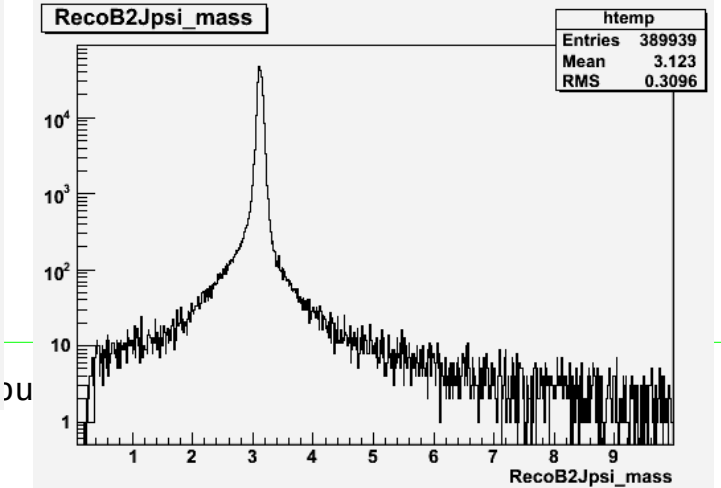
Prompt J/Psi


GenB2Jpsi_Pdl2D_Jpsi
htemp
Entries 1150321
Mean 1.095e-05
RMS 0.0009938
GenB2Jpsi_Pdl2D_Jpsi

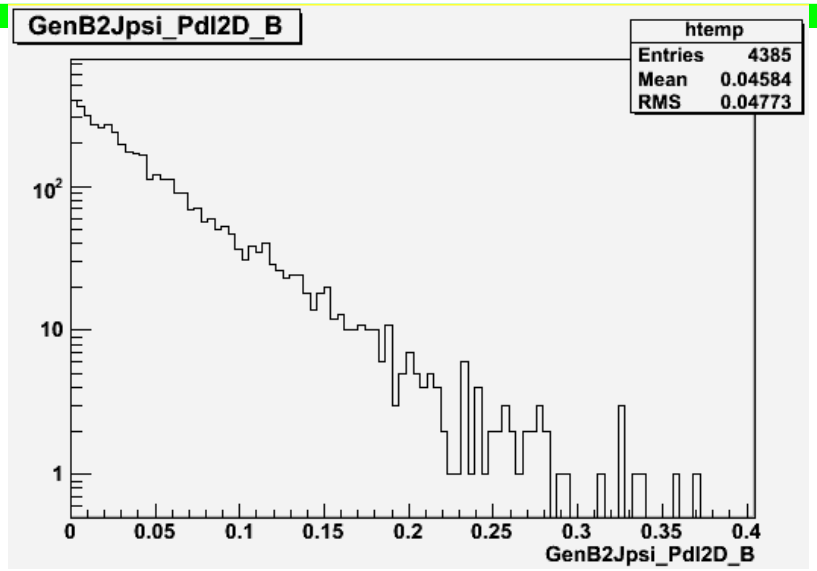

GenB2Jpsi_Mo_pdgid
htemp
Entries 150321
Mean 443.3
RMS 22.77
GenB2Jpsi_Mo_pdgid

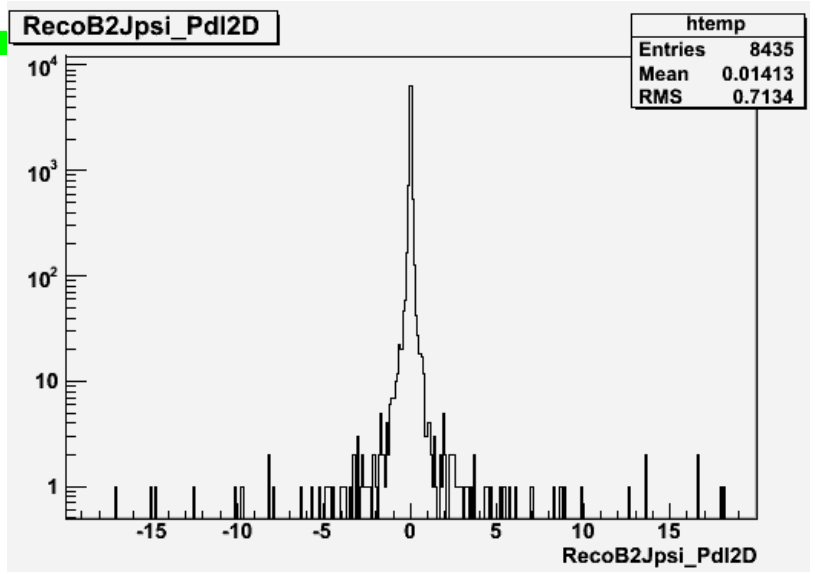

GenB2Jpsi_Mo_mass
htemp
Entries 150321
Mean 3.275
RMS 0.2136
chi_c0, chi_c1, chi_c2

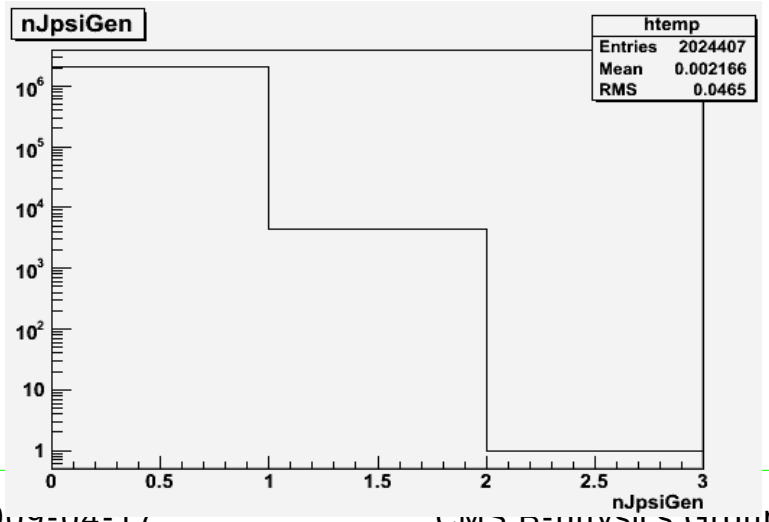

RecoB2Jpsi_Pdl2D
htemp
Entries 389939
Mean 0.07045
RMS 0.5451
RecoB2Jpsi_Pdl2D

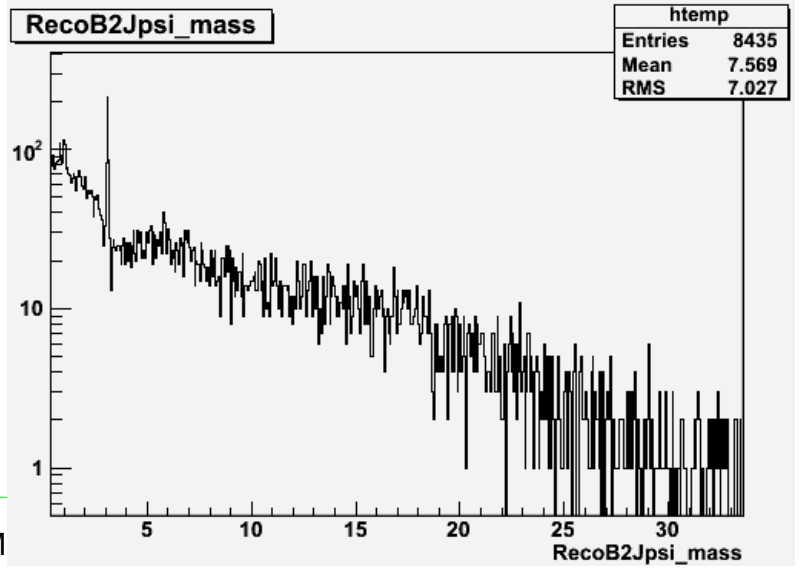

RecoB2Jpsi_mass
htemp
Entries 389939
Mean 3.123
RMS 0.3096
RecoB2Jpsi_mass

PPmuX


GenB2Jpsi_Pdl2D_B
htemp
Entries 4385
Mean 0.04584
RMS 0.04773
GenB2Jpsi_Pdl2D_B


RecoB2Jpsi_Pdl2D
htemp
Entries 8435
Mean 0.01413
RMS 0.7134
RecoB2Jpsi_Pdl2D


nJpsiGen
htemp
Entries 2024407
Mean 0.002166
RMS 0.0465
nJpsiGen


RecoB2Jpsi_mass
htemp
Entries 8435
Mean 7.569
RMS 7.027
RecoB2Jpsi_mass

To do List

- start anal on Sum08 data @10TeV
  - Efficiency: Accept., Trig & reco. :M.C. & T.P.
  - Comprehensive anal method
    - Pdl efficiency
    - Scale factor
- Prepare PAS and Note draft.

backups

Pseudo proper decay length

$$\vec{X} = \vec{x}_B - \vec{x}_{prim}$$

$$L_{xy}^B = \frac{\vec{X} \cdot \vec{p}_T^B}{|\vec{p}_T^B|}$$

$$\lambda^B = \frac{L_{xy}^B}{(\beta\gamma)_T^B} = L_{xy}^B \cdot \frac{M_B}{p_T^B}$$

$$\lambda_\psi = \frac{L_{xy}^\psi}{(\beta\gamma)_T^\psi} = L_{xy}^\psi \cdot \frac{M_\psi}{p_T^\psi}$$

$$\lambda = \frac{\lambda_\psi}{\langle F(p_T^\psi)\rangle} = L_{xy}^\psi \cdot \frac{M_\psi}{p_T^\psi \langle F(p_T^\psi)\rangle}$$

$$F(p_T^\psi) = \frac{(\beta\gamma)_T^B}{(\beta\gamma)_T^\psi} = \frac{\lambda_\psi}{\lambda_B}$$

- **Measure the 2-dimensional decay length *Lxy* for the *J/*Ψ **meson sample**
- **pseudo proper decay length distribution**
- **Measure the l distribution of the background under the *J/*Ψ **by studying the** μ **+** μ **- mass sidebands of the *J/*Ψ**
- **Fit the distribution to the sum of background, direct (zero-lifetime) and *B* decay (non-zero lifetime) Contributions and extract the lifetime**