Pre version

Inclusive $b \to J/\psi$ ($J/\psi \to \mu\ \mu$) X analysis VII

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Outline

- CSA07 Data Samples with SW_1_6_10
- Trigger bits & Table
- HLT/RECO Eff.
- Ongoing work

CMS CSA07 M.C. data samples 08'

b2J/psi

- /BtoJpsi/CMSSW_1_6_0-PreCSA07-HLT-A4/GEN-SIM-DIGI-RECO
  556324 events, 154 files, 18 block(s), 858.3GB
- /BtoJpsi/CMSSW_1_6_0-PreCSA07-A1/GEN-SIM-DIGI-RAW
  563463 events, 156 files, 16 block(s), 719.8GB
- /BbartoJpsi/CMSSW_1_6_0-PreCSA07-HLT-A4/GEN-SIM-DIGI-RECO
  509527 events, 141 files, 16 block(s), 786.6GB
- /BbartoJpsi/CMSSW_1_6_0-PreCSA07-A1/GEN-SIM-DIGI-RAW
  520373 events, 144 files, 14 block(s), 665.0GB

Incl b: 13.5 pb-1

CSA08 Incl b: 10 pb-1

p-J/psi

- /Charmonium_Pt_0_20/CMSSW_1_6_0-PreCSA07-HLT-A4/GEN-SIM-DIGI-RECO
  1021134 events, 160 files, 21 block(s), 1.0TB
- /Charmonium_Pt_0_20/CMSSW_1_6_0-PreCSA07-A1/GEN-SIM-DIGI-RAW
  1039884 events, 163 files, 19 block(s), 895.3GB
- /Charmonium_Pt_20_inf/CMSSW_1_6_0-PreCSA07-HLT-A4/GEN-SIM-DIGI-RECO
  1012650 events, 362 files, 37 block(s), 1.8TB
- /Charmonium_Pt_20_inf/CMSSW_1_6_0-PreCSA07-A1/GEN-SIM-DIGI-RAW
  1040964 events, 372 files, 32 block(s), 1.5TB

3pb-1

400pb-1

CSA08 p-J/Psi: ~10 pb-1

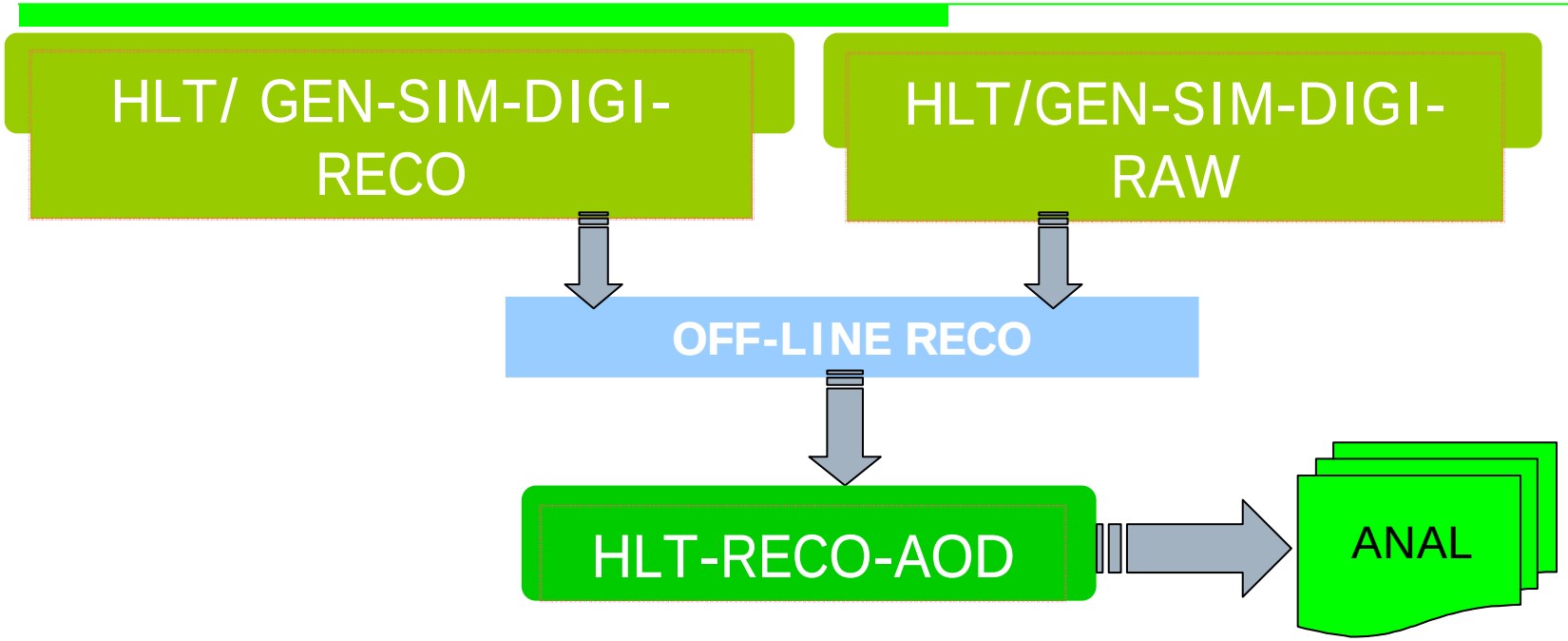
QCD

- /Muon_ppMuX/CMSSW_1_6_0-PreCSA07-HLT-B3/GEN-SIM-DIGI-RAW
  20697806 events, 5502 files, 29.3TB
- /Muon_ppMuX/CMSSW_1_6_0-PreCSA07-B2/GEN-SIM-DIGI-RAW
  21365589 events, 5679 files, 25.9TB
- /Muon_ppMuX/CMSSW_1_6_7-CSA07-1197906039/GEN-SIM-DIGI-RAW
  5555458 events, 5487 files, 9.6TB

QCD: 0.45 pb-1

CSA08 QCD: 0.45 pb-1

Data flow via SW_1_6_10



	avail/tot	jobs	Evts	pb-1
Inclusive b:	18(21)/28	~340k/520k	~8.5/13.5
p-JPsi:	23(28)/40	~600k/1M	~1.8/3
QCD ppmuX:	--on the way--		

Trig Bits: L1 & HLT- single evt

```
reading run and event: 453:1506687
*****L1 Trig accpet Trig type 0--:L1_SingleMu3
*****L1 Trig accpet Trig type 1--:L1_SingleMu5
*****L1 Trig accpet Trig type 21--:L1_SingleJet15
*****L1 Trig accpet Trig type 23--:L1_SingleJet30
*****L1 Trig accpet Trig type 37--:L1_HTT100
*****L1 Trig accpet Trig type 43--:L1_ETM20
*****L1 Trig accpet Trig type 48--:L1_DoubleMu3
*****L1 Trig accpet Trig type 63--:L1_Mu3_Jet15
*****L1 Trig accpet Trig type 64--:L1_Mu5_Jet15
*****L1 Trig accpet Trig type 66--:L1_Mu5_Jet20
L1 Trig Report called:120
*****HLT Trig accpet Trig type 49
*****HLT Trig accpet Trig type 50
*****HLT Trig accpet Trig type 55
*****HLT Trig accpet Trig type 56
*****HLT Trig accpet Trig type 59
HLT Trig Report called:90
```

inclusive b

```
reading run and event: 453:1515747
*****L1 Trig accpet Trig type 0--:L1_SingleMu3
*****L1 Trig accpet Trig type 1--:L1_SingleMu5
*****L1 Trig accpet Trig type 2--:L1_SingleMu7
*****L1 Trig accpet Trig type 3--:L1_SingleMu10
*****L1 Trig accpet Trig type 21--:L1_SingleJet15
*****L1 Trig accpet Trig type 63--:L1_Mu3_Jet15
*****L1 Trig accpet Trig type 64--:L1_Mu5_Jet15
*****L1 Trig accpet Trig type 66--:L1_Mu5_Jet20
*****L1 Trig accpet Trig type 67--:L1_Mu5_TauJet20
L1 Trig Report called:120
*****HLT Trig accpet Trig type 59
HLT Trig Report called:90
```

```
reading run and event: 10000066:37023
*****L1 Trig accpet Trig type 0--:L1_SingleMu3
*****L1 Trig accpet Trig type 1--:L1_SingleMu5
*****L1 Trig accpet Trig type 2--:L1_SingleMu7
*****L1 Trig accpet Trig type 48--:L1_DoubleMu3
L1 Trig Report called:120
*****HLT Trig accpet Trig type 55
*****HLT Trig accpet Trig type 56
*****HLT Trig accpet Trig type 57
*****HLT Trig accpet Trig type 59
HLT Trig Report called:90
```

P-JPsi

```
reading run and event: 10000066:37023
*****L1 Trig accpet Trig type 0--:L1_SingleMu3
*****L1 Trig accpet Trig type 1--:L1_SingleMu5
*****L1 Trig accpet Trig type 2--:L1_SingleMu7
*****L1 Trig accpet Trig type 48--:L1_DoubleMu3
L1 Trig Report called:120
*****HLT Trig accpet Trig type 55
*****HLT Trig accpet Trig type 56
*****HLT Trig accpet Trig type 57
*****HLT Trig accpet Trig type 59
HLT Trig Report called:90
```

```
49  HLT2MuonNonIso
50    HLT2MuonJPs
55     CndHLT1MuonPrescalePt3
56     CandHLT1MuonPrescalePt5
57     CandHLT1MuonPrescalePt7x7
58     CandHLT1MuonPrescalePt7x10
59     CandHLT1MuonLevel1
```

Trig Table: L1 & HLT

L1

inclusive b

P-JPsi

L1T-Report Events total = 25528 passed = 14919 failed = 10609 errors = 0

L1T-Report	L1T Bit#	Passed	Failed	Errors	Name
L1T-Report	0	12831	12697	0	L1_SingleMu3
L1T-Report	1	7477	18051	0	L1_SingleMu5
L1T-Report	2	4467	21061	0	L1_SingleMu7
L1T-Report	3	2009	23519	0	L1_SingleMu10
L1T-Report	4	680	24848	0	L1_SingleMu14
L1T-Report	5	298	25230	0	L1_SingleMu20
L1T-Report	6	151	25377	0	L1_SingleMu25
L1T-Report	48	5200	20328	0	L1_DoubleMu3
L1T-Report	63	2999	22529	0	L1_Mu3_Jet15
L1T-Report	64	2135	23393	0	L1_Mu5_Jet15
L1T-Report	65	0	25528	0	L1_Mu3_Jet70
L1T-Report	66	1375	24153	0	L1_Mu5_Jet20
L1T-Report	67	457	25071	0	L1_Mu5_TauJet20
L1T-Report	68	168	25360	0	L1_Mu5_TauJet30

L1T-Report Events total = 12709 passed = 10623 failed = 2086 errors = 0

L1T-Report	L1T Bit#	Passed	Failed	Errors	Name
L1T-Report	0	8320	4389	0	L1_SingleMu3
L1T-Report	1	5860	6849	0	L1_SingleMu5
L1T-Report	2	4097	8612	0	L1_SingleMu7
L1T-Report	3	2218	10491	0	L1_SingleMu10
L1T-Report	4	899	11810	0	L1_SingleMu14
L1T-Report	5	417	12292	0	L1_SingleMu20
L1T-Report	6	206	12503	0	L1_SingleMu25
L1T-Report	48	3913	8796	0	L1_DoubleMu3
L1T-Report	63	5293	7416	0	L1_Mu3_Jet15
L1T-Report	64	3969	8740	0	L1_Mu5_Jet15
L1T-Report	65	0	12709	0	L1_Mu3_Jet70
L1T-Report	66	3185	9524	0	L1_Mu5_Jet20
L1T-Report	67	1744	10965	0	L1_Mu5_TauJet20
L1T-Report	68	914	11795	0	L1_Mu5_TauJet30

Trig Table: L1 & HLT (CNT)

HLT

inclusive b

HLT-Report	46	12709	132	0 HLT1MuonIso
HLT-Report	47	12709	105	0 HLT1MuonNonIso
HLT-Report	48	12709	556	0 CandHLT2MuonIso
HLT-Report	49	12709	666	0 HLT2MuonNonIso
HLT-Report	50	12709	541	0 HLT2MuonJPsi
HLT-Report	51	12709	8	0 HLT2MuonUpsilon
HLT-Report	52	12709	0	0 HLT2MuonZ
HLT-Report	53	12709	6	0 HLTNMuonNonIso
HLT-Report	54	12709	17	0 HLT2MuonSameSign
HLT-Report	55	12709	4234	0 CandHLT1MuonPrescalePt3
HLT-Report	56	12709	2650	0 CandHLT1MuonPrescalePt5
HLT-Report	57	12709	1326	0 CandHLT1MuonPrescalePt7x7
HLT-Report	58	12709	511	0 CandHLT1MuonPrescalePt7x10
HLT-Report	59	12709	8635	0 CandHLT1MuonLevel1

P-JPsi

HLT-Report	46	25528	244	0 HLT1MuonIso
HLT-Report	47	25528	39	0 HLT1MuonNonIso
HLT-Report	48	25528	1581	0 CandHLT2MuonIso
HLT-Report	49	25528	1602	0 HLT2MuonNonIso
HLT-Report	50	25528	1351	0 HLT2MuonJPsi
HLT-Report	51	25528	1	0 HLT2MuonUpsilon
HLT-Report	52	25528	0	0 HLT2MuonZ
HLT-Report	53	25528	2	0 HLTNMuonNonIso
HLT-Report	54	25528	5	0 HLT2MuonSameSign
HLT-Report	55	25528	9395	0 CandHLT1MuonPrescalePt3
HLT-Report	56	25528	4444	0 CandHLT1MuonPrescalePt5
HLT-Report	57	25528	1621	0 CandHLT1MuonPrescalePt7x7
HLT-Report	58	25528	443	0 CandHLT1MuonPrescalePt7x10
HLT-Report	59	25528	13595	0 CandHLT1MuonLevel1

Objects & Para. : Muon and JPsi

- L1, L2, L2Update@vtx, L3
- Sta, StaUpdate@vtx, Tk, Glb
- L3JPsi, TkJPsi, GlbJPsi

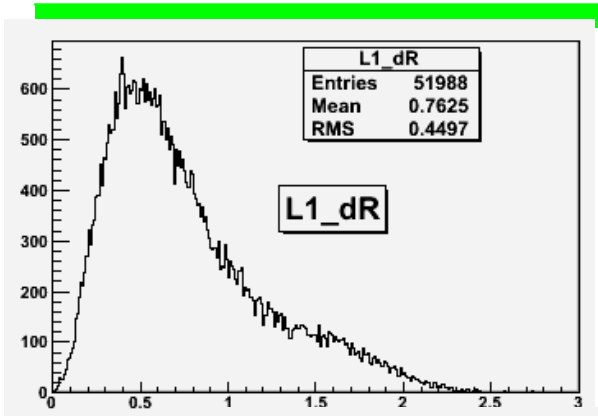
- GlbGlb, GlbSta, GlbTk -- for Tag&Probe

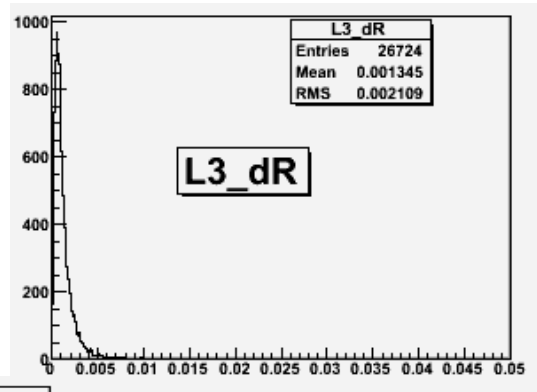
  efff: ~f(pT, η)

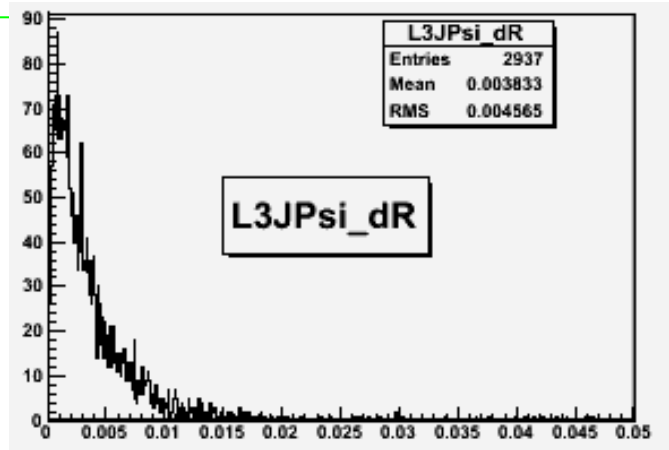
- pT, Eta, Phi; dpt,dpT/pT, dEta, dPhi; dR

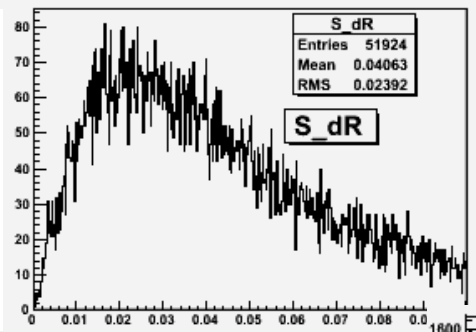
from p-JPsi sample

dR distribution (trig,reco vs. gen)



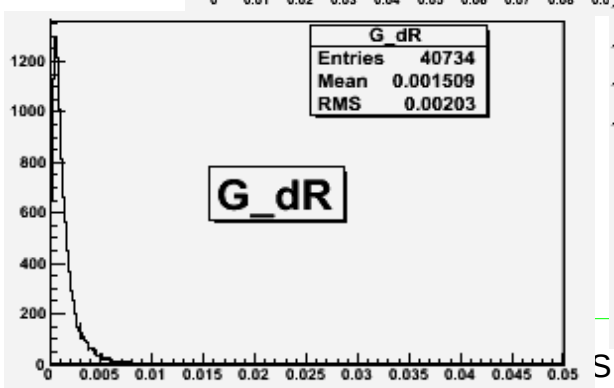


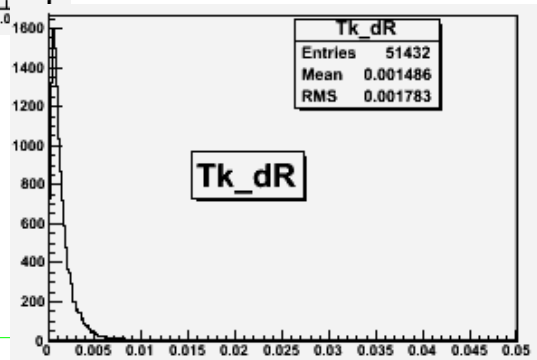


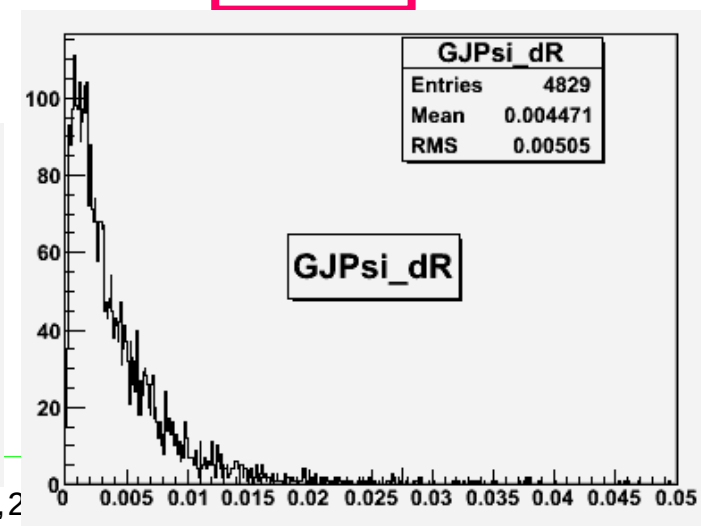


μ

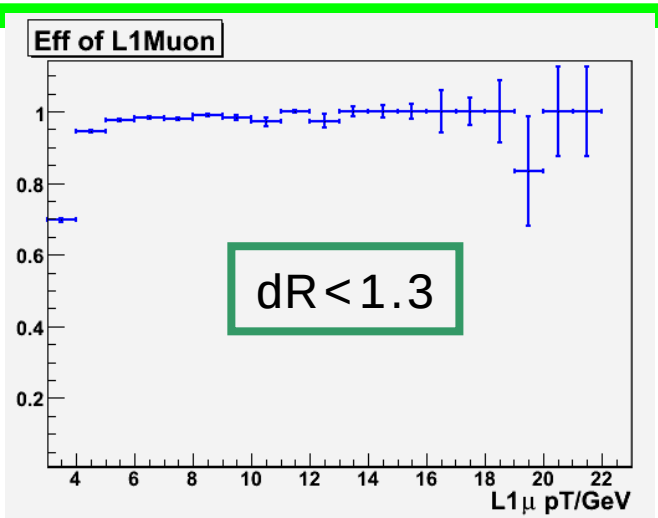
J/Ψ

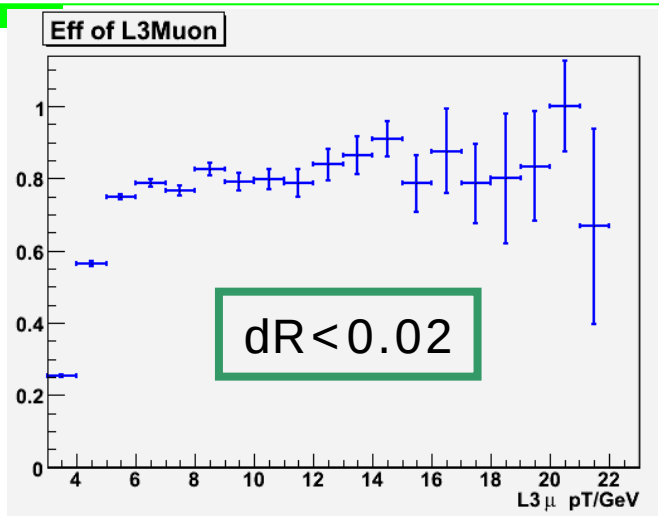


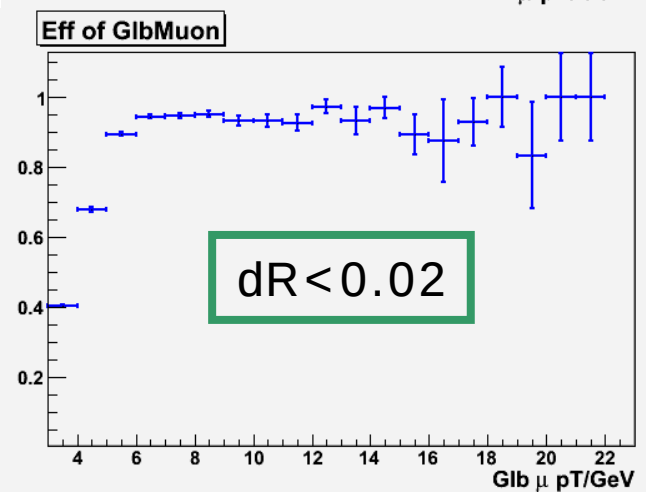


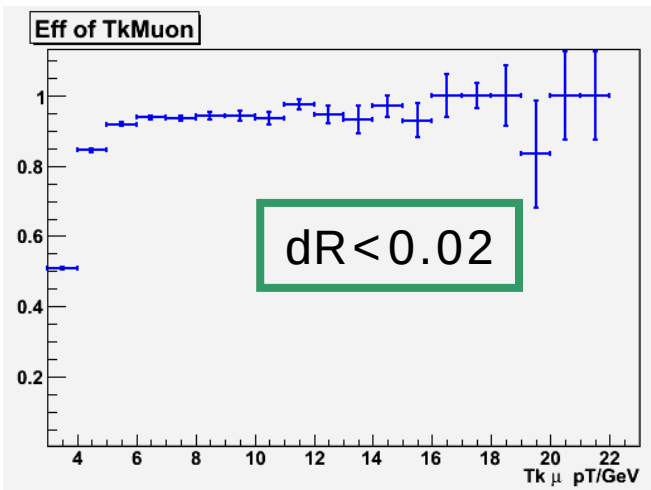


L1 , L1*L3, Glb & Tk: muon Eff. vs. pT

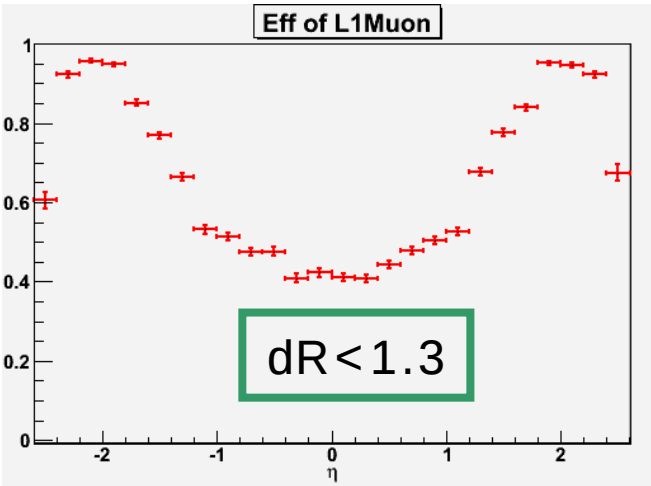


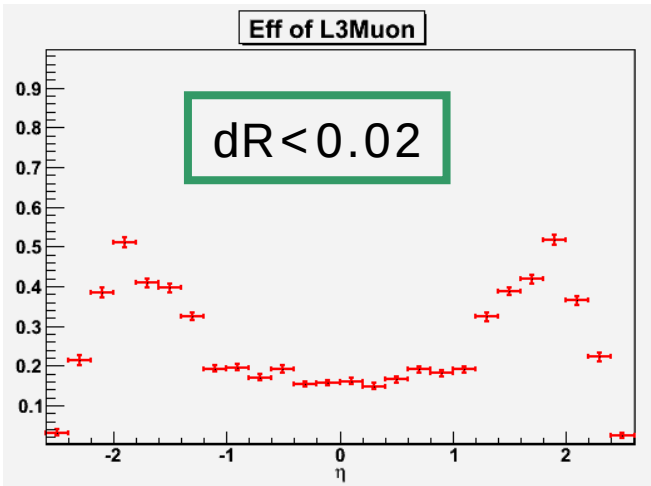


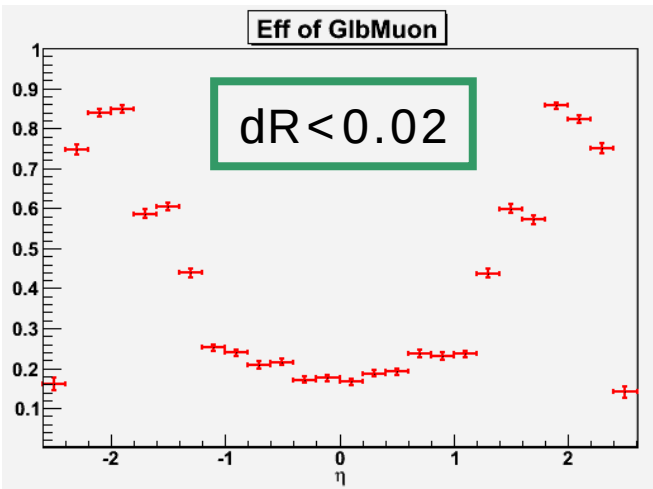


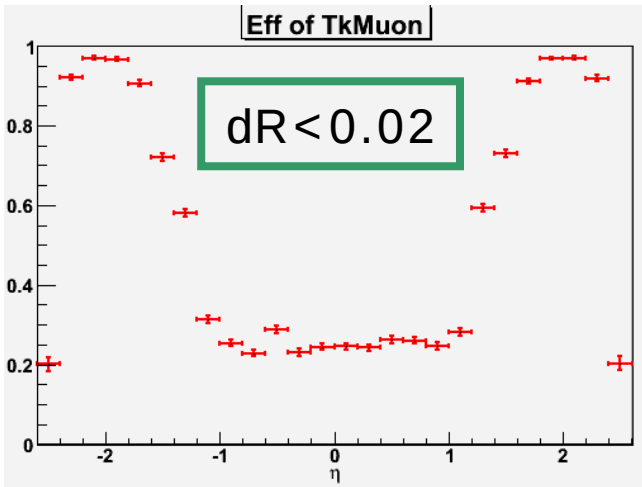


L1 , L1*L3, Glb & Tk: muon Eff. vs. η

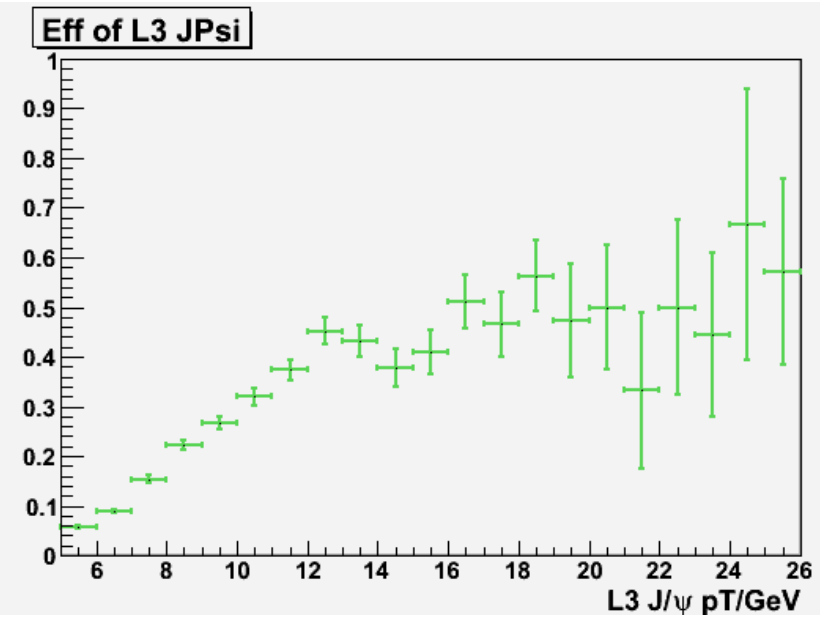


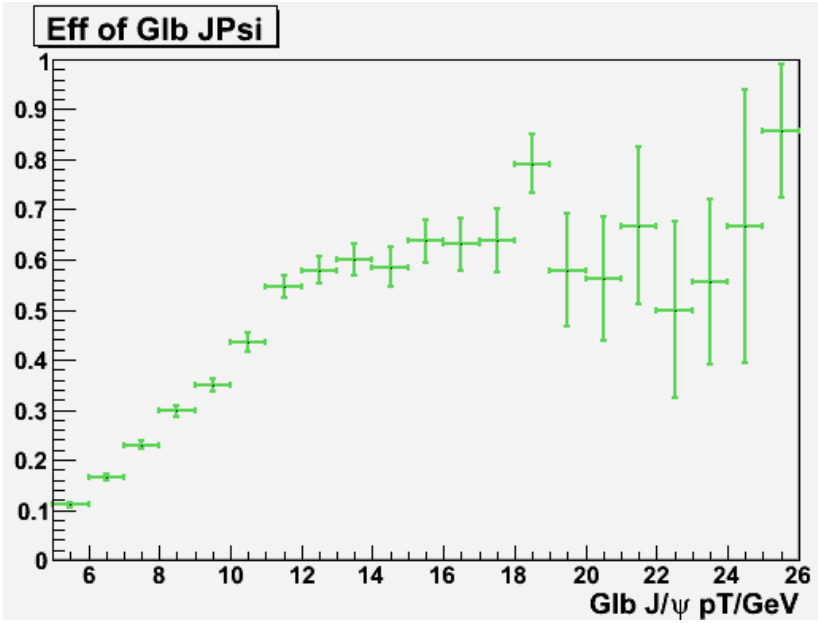






L3 & Glb JPsi Eff. vs. pT





dR<0.02

Done & to do list

- Unbinned combined MLH fit & analysis method
- Unfolding method (test cnt.)

To use CSA07 data

still limited statistics for this pT-bin-based analysis!!!

- Acceptance and efficiency

1. Geometric & kinematic Acceptance: A(pT, η)
2. Trig. Efficiency: L1 moun., L3 dimuon, etc.
3. Reco. Efficiency: local reco., matching & selection cuts, Glb muon,etc.

Tag & Probe

- Systematic uncertainties: sources & estimation

with CMSSW_1_6_10