

B measurement via J/psi: Status and Plans

Prashant Shukla
Mumbai – INDIA

Ji Hyun Kim
Korea University, Korea



Status and plans

1. **Generator level studies for acceptances:**
 - * **Direct J/psi and B->J/psi for pp 5.5 TeV,**
 - * **Extrapolation to Pb+Pb (Complete almost)**

2. **Reconstruction for pp**
 - * **Reconstruction efficiency (Complete almost)**
 - * **Secondary Vertex reconstruction -- Prashant**
 - * **L1/L2 trigger efficiencies -- Ji Hyun**

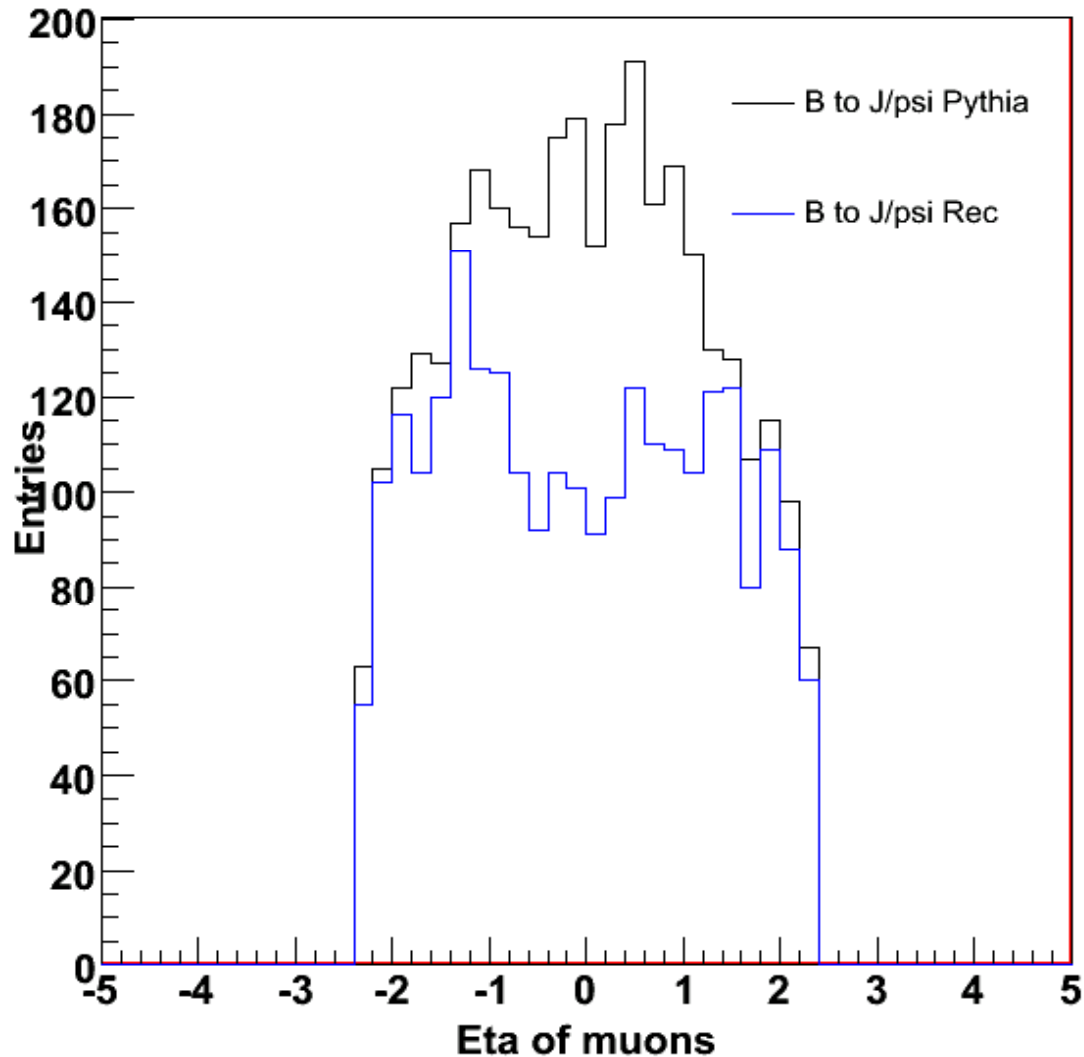
3. **Reconstruction Heavy Ions:**
 - * **CMSSW_1_6_6 + Min Bias HI Tracking Code**
 - * **Tracking (Signal + HydJet events)**
 - * **Secondary Vertex**



Reconstructed Muons from B->J/psi

PP at 5.5 TeV, CMSSW_1_6_6

for 3586 events in $|\text{Eta}| < 2.4$, $\text{Pt} > 2 \text{ GeV}$



$|\text{Eta}| < 2.4$, $\text{Pt} > 3.5 \text{ GeV}$

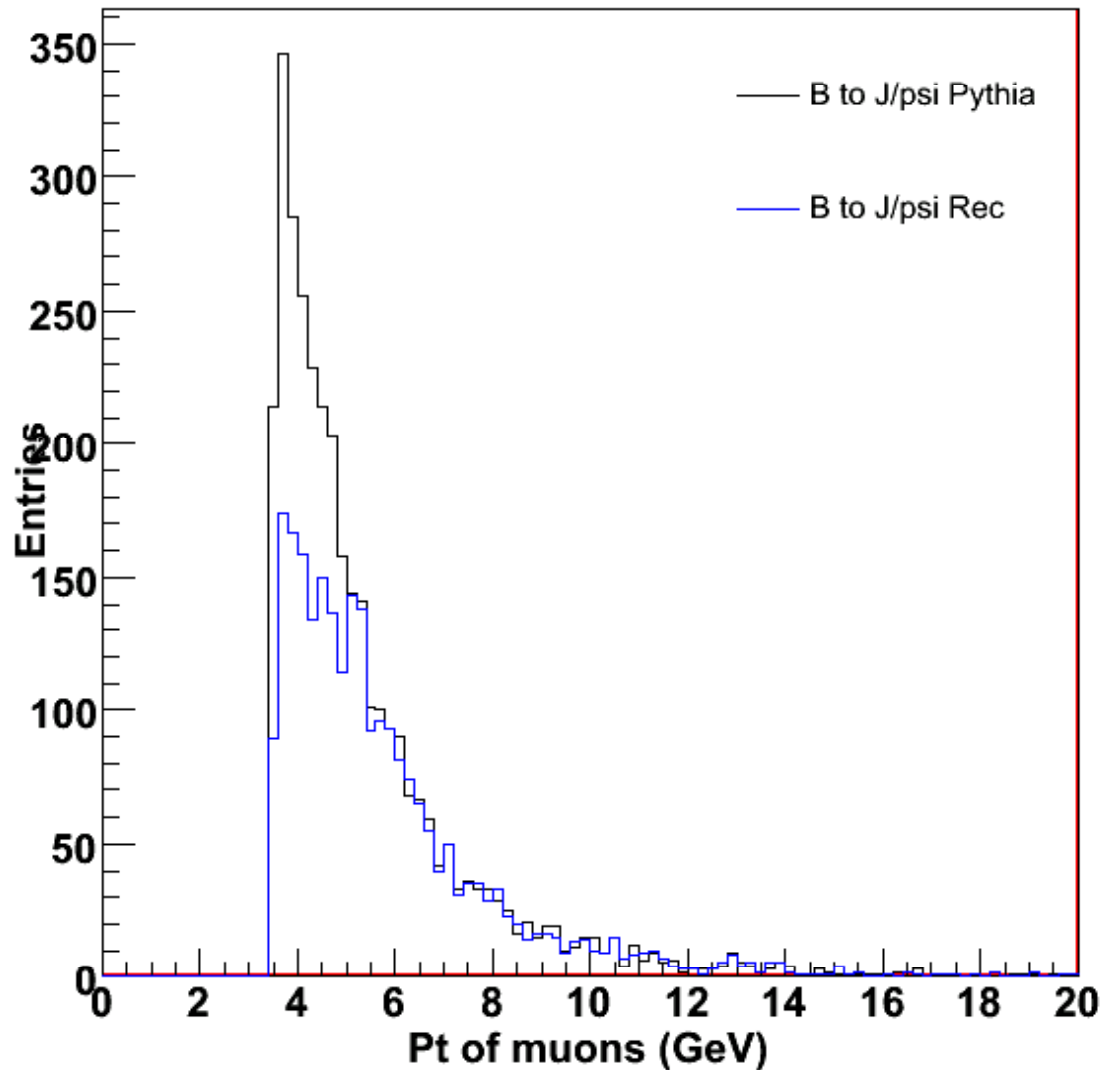
Generated Muons 3341
Reconstructed Muons 2515
Recons Eff = 75.27 %



Reconstructed Muons from B->J/psi

PP at 5.5 TeV, CMSSW_1_6_6

for 3586 events in $|\text{Eta}| < 2.4$, $\text{Pt} > 2 \text{ GeV}$



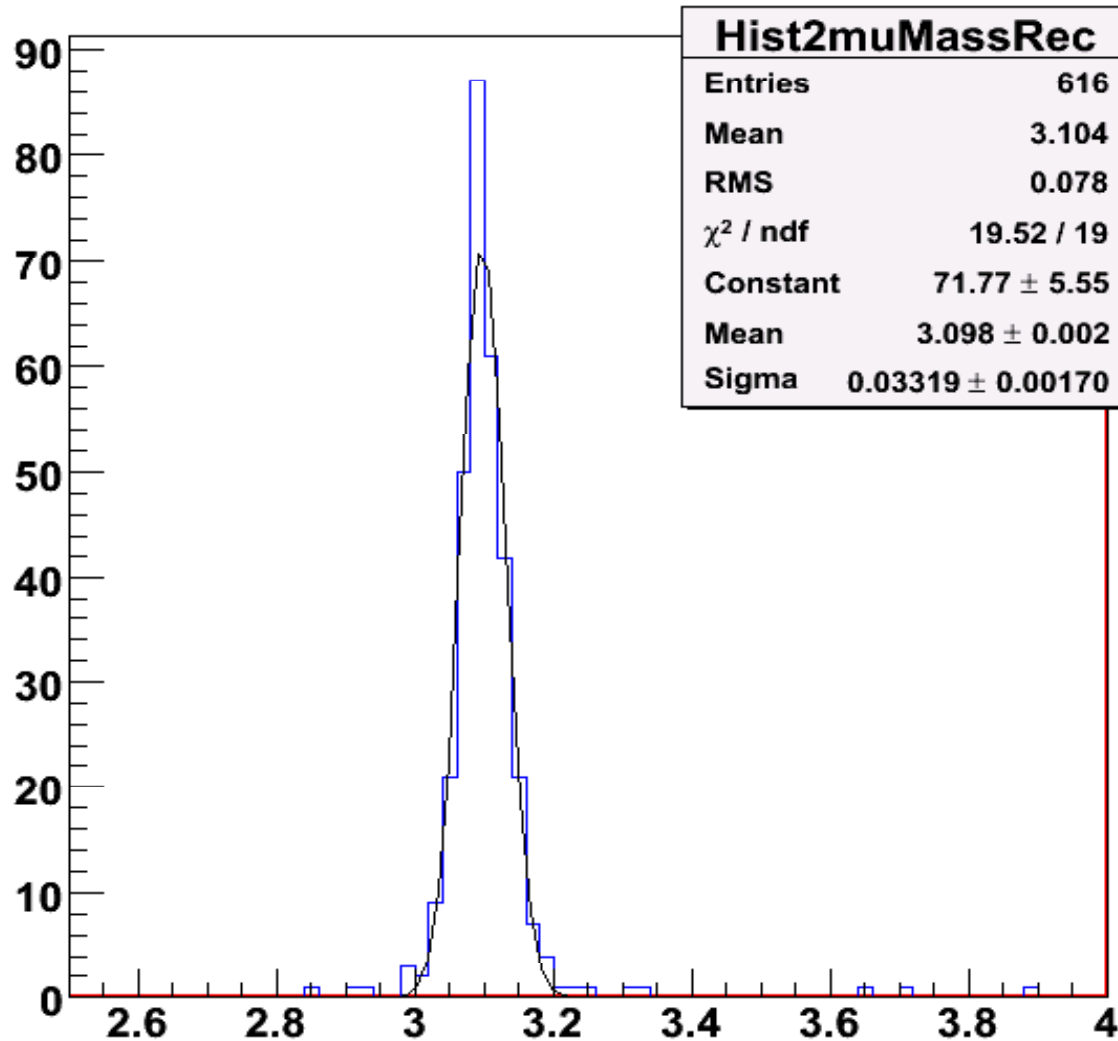
$|\text{Eta}| < 2.5$, $\text{Pt} > 3.5 \text{ GeV}$

Generated Muons 3341
Reconstructed Muons 2515
Recons Eff = 75.27 %



Reconstructed Jpsi from B->J/psi

PP at 5.5 TeV, CMSSW_1_6_6
for 3586 events in $|\text{Eta}| < 2.4$, $\text{Pt} > 2 \text{ GeV}$



$|\text{Eta}| < 2.4$, $\text{Pt} > 3.5 \text{ GeV}$

Generated J/psi 1024
Reconstructed J/psi 616
Recons Eff = 60.1 %



(Near) Future Plans

1. **Secondary Vertex reconstruction for pp HeavyFlavourAnalysis/Bs2MuMu**
2. **L1/L2 trigger efficiency (Ji Hyun)**
 - * **J/Psi reconstruction from dimuon in CMSSW_1_6_0**
(complete almost)
 - * **Getting J/Psi trigger efficiency using L1/L2 information**
(near future)
3. **Reconstruction Heavy Ions:**
 - * **CMSSW_1_6_6 + Min Bias HI Tracking Code**
CMS/MinimumBiasTracking
 - * **Tracking (Signal + HydJet events)**
Hydjet events from Inventory: /castor/cern.ch/user/y/yilmaz/mc/
 - * **Secondary Vertex (??)**



Back up: Generator level studies: Direct Jpsi and B to J/psi

PbPb at 5.5 TeV, for one month of LHC Running

	$J/\psi \rightarrow \mu^+ \mu^-$	$B \rightarrow J/\psi \rightarrow \mu^+ \mu^-$
cross section	506 mb (J/ψ)	6230 mb ($B\bar{B}$)
No. of $B\bar{B}$	-	3.1×10^9
No. of J/ψ	2.5×10^8	7.2×10^7
No. of $\mu^+ \mu^-$	1.5×10^7	4.3×10^6
η acceptance	0.5386	0.6169
η and P_t acc.	0.0556	0.0364
Accepted $\mu^+ \mu^-$	8.3×10^5	1.6×10^5

Cross section
taken from CERN
yellow report

$|\text{Eta}| < 2.4$

$P_t > 3.5$

Does not include tracking and PID efficiency