

$$B^0 \rightarrow K^* \mu^- \mu^+$$

Finalization



Eluned Smith
Marcin Chrzaszcz

RWTH AACHEN
UNIVERSITY



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Selection Run1

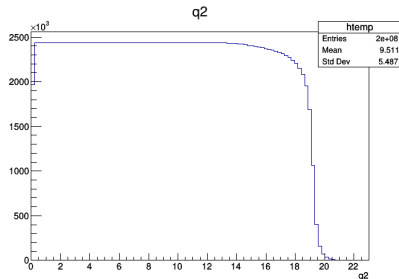
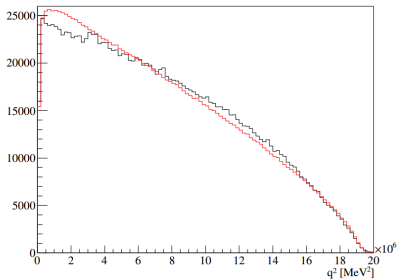
- ⇒ We have independently implemented Run1 selection.
- ⇒ Our implementation agrees between us (independent check).
- ⇒ There is slightly issue when running the same selection on S21:

S20 $N. B_d^0 \rightarrow K^* J/\psi$	442315
S21 $N. B_d^0 \rightarrow K^* J/\psi$	429258
Difference	2.95 %

We think the 3% is fine given that S20 and S21 even having the same cuts have different DDB etc. We saw that these things can cause a difference much much higher in previous rounds.

The need for MC - improvements

⇒ If you recall in Run1 we had PHSP MC:



⇒ More flat makes our life easier and less dirty in terms of reweighing :)

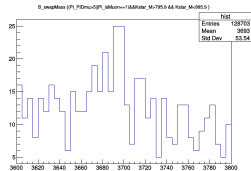
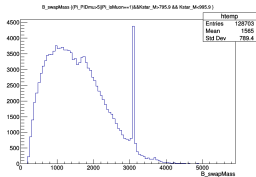
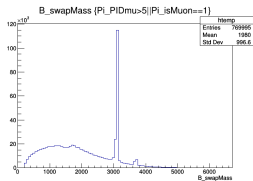
⇒ Produced 20M events so we can get the correction for small "non-flatness". (will give you links at the end).

Selection

⇒ Normally we have the swap for J/ψ :

```
"!((B0_swapMass>3036) and (B0_swapMass<3156) and  
(Pi_PIDmu>5||Pi_isMuon==1)) and !((B0_kmuswapMass>3036)  
and (B0_kmuswapMass<3156) or (K_PIDmu>5||K_isMuon==1))"
```

⇒ For Run2 we added the same for the $\psi(2S)$:



⇒ Impact for the Pwave analysis minimal but let's veto just to be sure :)

Location

⇒ the ntuples after the selection can be found:
`/eos/lhcb/wg/RD/Bd2Kstmumu/data_reduced`

